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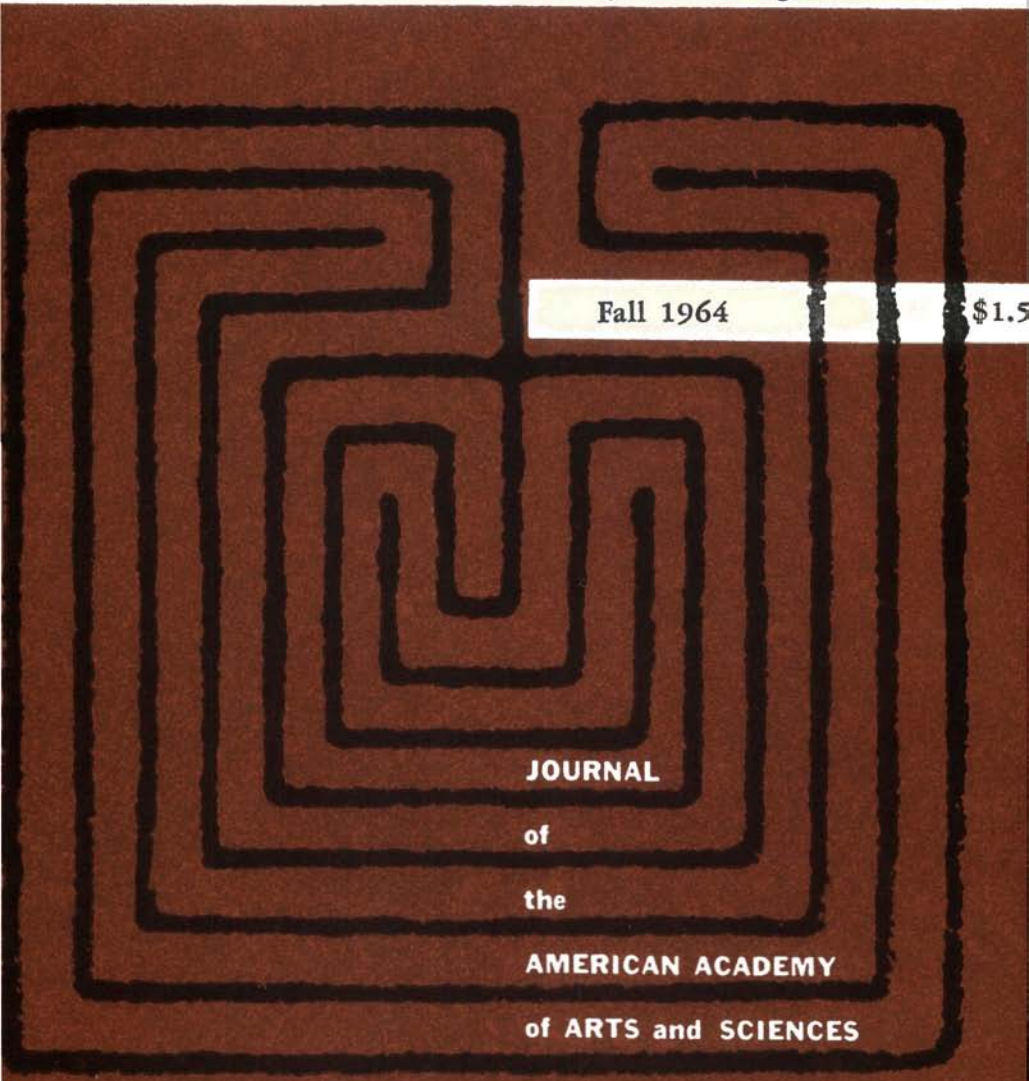

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DÆDALUS

Journal of the American Academy of Arts and Sciences

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ISSUED AS VOL. 93, NO. 4, OF THE PROCEEDINGS OF THE AMERICAN ACADEMY OF ARTS AND SCIENCES

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Preface to the Issue "The Contemporary University: U.S.A."

IN A TIME of rapid change, when almost all institutions assume new forms or show evidences of strain in seeking to accommodate themselves to unprecedented situations, there will always be a certain amount of disagreement about what in fact is taking place. The profound transformations that have occurred in American universities during the last two decades are very reasonably the subject of discussion and controversy. While certain of these changes give promise of unparalleled opportunities for research and inquiry, making possible service to society on a scale which would have been inconceivable before the Second World War, it is not always clear what "price" is being paid for these advantages, or what their ultimate institutional and personal effects will be. It is generally assumed that most of these innovations serve to improve American higher education. The evidences of curriculum reform, new sources of financial support, and the multiplication of libraries, classrooms, and laboratories are certainly impressive; the results of this vast expansion of effort must one day soon show themselves in the lives of those who gain from the new opportunities offered.

Dr. Clark Kerr suggests in his contribution to this volume that the day of a "truly American university, an institution unique in world history, an institution not looking to other models but serving as a model for universities in other parts of the globe," is at hand. The American universities' great indebtedness to foreign models, particularly British and German, is generally admitted; that this situation no longer prevails in any significant respect is equally acknowledged. The problem that remains, however, is whether the American university today, the legatee of many experiences indigenous to this nation, will now serve as the model for others. Also, it is important to know what parts of the system will be copied, and whether these will incorporate certain of the more

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intangible elements, those which do not appear at first sight, but are in fact the essence of American university life.

For this influence to exert itself, there must be some understanding of the complexities of our university system, which are not always apparent on the surface. Even more, it must be recognized that the American university is not a "finished" product about which there is no longer any controversy. That an unprecedented number of young men and women are today seeking admission to American universities, both for undergraduate and graduate instruction, and that every effort must be made to provide opportunities for them is well understood. Some would say that the preparation with which these young people enter by far exceeds what was common until recently, and that this fact alone imposes a special obligation on the colleges and universities to do well by those who seek higher education. What "doing well" means in the context of our time and age is not self-evident. It is difficult enough to know what a proper professional education ought to be in fields which are rapidly changing; it is even more difficult to determine how the undergraduate ought to be educated. When an increasing number of undergraduates are planning professional careers, there is a real hazard in making the college serve the purposes of the professional schools. If the college is simply a "corridor," the last one to be traversed before the really important room is entered, the nature of the undergraduate's experience is considerably affected. This is not simply a matter of raising questions about the adequacy of a particular curriculum. It extends to more basic matters such as how a college community ought to be organized, what services it must provide, and what demands it may legitimately make of young people. When the content of specific courses is at issue, that is a matter easily resolved. When, however, the utility of courses generally is brought into question, more fundamental issues are touched. The problem today is not simply to know how mechanical inventions may be used to bring popular lectures to audiences of a thousand, or even how to introduce new methods for language instruction, but what the significant educational experiences of young and intelligent men and women ought to be.

This involves making certain basic decisions about the university's "responsibility" for its students. That a student's health—physical and mental—is a proper concern of the university everyone agrees. How, in the context of today's world, both ought to be provided for is not so immediately apparent. To construct and staff

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a first-class infirmary is difficult enough; to give counsel and aid, preventing illness as well as remedying it, requires greater resources and skills. To understand how an athletic program may be developed for the primary purpose of providing healthful physical activity for the young, and to find proper support for such a venture, is also demanding. To know when the university has a right to intervene in the life of the student, and when twentieth-century mores and habits counsel nonintervention, regardless of consequences, is a delicate matter for which there are no easy solutions. Given the complexity of certain of these issues, we may say: "we will do nothing about them; our purpose is to offer instruction, which means providing a catalogue with course offerings." However, few universities today believe that such a solution would constitute a proper performance of their duty.

To educate the student well, there must be some concern with priorities and intangibles. Where funds are available but almost always insufficient, choices must be made. Whether the emphasis is placed on constructing a new Student Union building, with facilities for relaxation, or whether it is given to building a residence hall, making provision for a different sort of student social life to develop, will never be a serious issue. Both, probably, will be asked for, and, in the end, constructed. A problem arises, however, when decisions have to be made about the amounts of money to be allotted for each. Shall more money be allocated for the student union even if it means cutting the "frills" from the dormitories, or are these "frills" precisely the features that distinguish a cell from a room, enhancing the charms of that privacy which is the condition of effective study? The advantages of residence in a twentieth-century university community must be reflected on in a context which takes account of what our cities are like, what other communal supports exist for young people, and how much the education of even the most talented depends upon a certain relation between those who are passing through at the same time. What is required is not simply an adequate architectural structure but an understanding of the nature of a university society.

Another question which cannot be avoided is what resources may be legitimately reserved for the building and staffing of special libraries and laboratories. Does it matter that only ten percent of the student body will benefit from the existence of a particular facility? Is it not important that this minority be provided for? What is lost if the concern is only with the needs of the many?

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These are not easy matters to decide, particularly when the requirements of the majority are so insistent.

The situation in respect to faculty is not essentially different. Here, also, there is a fundamental agreement about the progress that has been made in recent years, but with it an awareness that these advances have only served to make more obvious certain basic problems for those who teach. Everyone applauds the general improvements in salary which have made it possible for younger and older faculty alike to live in a more fitting manner. The increased availability of fellowship and other aid makes possible research and study in conditions infinitely superior to any that existed even as recently as twenty years ago. With these improvements, however, have come certain new obligations, many of them imposed by outside bodies; almost all of them are worthy, but they necessarily divert the professor from his principal duties within the university. The existence of a major airport in the vicinity of a university was not until very recently seen as a university asset. Some would still question whether it is that, since it takes the professor away as often as it brings visitors in. At a time when university faculties, particularly in those fields which touch public policy, serve in a myriad of activities, the university is required to share its personnel in a way that was never thought necessary before. The benefits, to the professor and to the university alike, are both tangible and intangible; there is much evidence to suggest that the gains outweigh the losses. Certain problems, however, are created by this situation. Where faculties increase their size substantially, not only to accommodate the needs of a larger number of students, but also to take account of the fact that each year a certain number of persons may be away or involved in responsibilities which reduce their availability for teaching, there is a new pressure added to those which already exist. How this perpetual activity—this constant coming and going—which will certainly increase, will ultimately affect the university, it is still too early to say. The university's control over the situation is limited; if its policy is too rigid, it risks losing valuable faculty members who will find more hospitable shores elsewhere; if it is too permissive, it risks becoming a way station, where professors stop occasionally to perform an ancient ritual called teaching.

What makes the situation all the more complicated is the obvious importance (even necessity) of many of the activities which call the professor away from his more purely academic responsi-

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bilities. Because of the distinction of American scholarship in many areas, the responsibility to maintain standards is obvious. That this requires giving considerable attention to the next generation of scholars is as self-evident as that it requires certain sorts of relations to be maintained with mature scholars wherever they are to be found. These duties cannot be neglected; they are the condition of the perpetuation of professional excellence. With them, however, go other responsibilities scarcely less demanding or arduous. The obligation of "running" a university cannot be delegated; it involves chairmanships, committees, councils and all the rest. The conscientious person finds himself overwhelmed, not so much by any one demand, but by the collection of responsibilities, few of which he can dismiss as unimportant. The university, by comparison with other institutions, still stands as a center of contemplation; by comparison with what it was even recently, it appears too active and too agitated. How the American university will eventually resolve such problems is by no means clear at this time.

Beyond all these questions, however, there are others of even greater urgency. Dr. Julius Stratton, in his 1964 Massachusetts Institute of Technology Commencement address, published in this issue, speaks of the university's "responsibility of taking part in the solution of problems which touch most deeply upon the total welfare of our society." To be able to mobilize resources for such purposes is an awesome task. It underscores the university's role as an engine of change in modern society, responding to perceived needs while at the same time giving leads and indicating directions. One of the university's major purposes is to advance knowledge; this is an obligation which may be subordinated to no other. The university is responsible for the creation of new "languages" even as it is for instruction in ancient tongues; it is concerned with new apprehensions of truth as well as with transmitting the best derived from an earlier age. The symbolic languages of twentieth-century learning depend on the university for their existence and development. Today, perhaps more than ever before, the organization of knowledge is itself a problem. When new sorts of inquiry are called for, requiring inter-disciplinary efforts, the question of whether particular researches are conducted within or outside the university may be crucially important. The university must know when and how to extend its welcome, and what is implied by its decision to proffer hospitality in one instance and to refuse it in another.

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This issue of *Dædalus* appears at a moment when the American university is being treated with ever increasing seriousness as a vital national resource. It is to be hoped that the situations which brought about this recognition, even were they to disappear, would not diminish the esteem for higher education in this country. The fact that many Americans scarcely perceive the country's good-fortune in possessing so many and such various distinguished institutions of higher learning is a matter which ought to concern us. Until a much greater number realize that in the universities, more perhaps than in automated factories or in luxurious highway systems, the country boasts an asset of unique value and an export of enormous potential, there is a hazard that the accomplishment will be prized less than it deserves to be. It would seem, therefore, that something more is involved than mere affirmation in presenting the American university as a model for others. For the university to serve as a model, it must be seen in all its complexity. This means taking account of its shortcomings as well as its achievements, and above all, seeing clearly and correctly the dominant ideas which animate its being.

This issue of *Dædalus* was made possible through a generous grant from the Edgar Stern Family Fund. We are greatly indebted to this organization for its continued support of inquiry touching all aspects of educational policy and practices. A closed conference, held at the House of the Academy in October, 1963, provided the occasion for a discussion of the drafts of many of the papers here published. We are grateful to Professor Daniel Bell, Mr. Peter Caws, Dr. Caryl P. Haskins, Professor Gerald Holton, Dr. Harold C. Martin, Mr. Harold Orlans, Professor Henri Peyre, President Nathan M. Pusey, and Professor Zeph Stewart, who came together with the authors and gave us the benefit of their counsel.

S.R.G.

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WILLIAM C. DEVANE

The College of Liberal Arts

We have lived so long and affectionately with our colleges of liberal arts that we seldom realize what a peculiarly native growth the college in America really is. The educational system of continental Europe has never seen the need of such an institution as the college as a separate entity between school and university, or has thought such a development too expensive. The student moved from the *lycée* or the *gymnasium* directly to the university and the professional phase of his training. Such broad and liberal education as the student received was crowded into the last years of the schools, and little time was allowed the student for the slow process of physical and emotional maturing. The British system, out of which our early colleges sprang, relied upon the great public schools, such as Eton and Harrow, to provide the basic liberal education for a small élite and allowed only a very limited group to go on to the university—though it must be said that Oxford and Cambridge in the seventeenth, eighteenth, and nineteenth centuries were rather more colleges than they were universities. The American college, born in colonial days and the early days of the Republic, lacked the strong foundations of English or continental schools and was little more than a high school. It is a curious fact that a college was often established in the sparsely populated country before there was any adequate secondary school in the area at all.

The characteristic institution of higher education in America in the first two-thirds of the nineteenth century was the independent college in the small town, in a few cases accompanied by a straggling collection of embryonic advanced schools. In the compactness of its studies and the limited number of its students, as well as in its isolation, such a college often developed a personality or character of its own—or rather, two personalities which had as little as

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possible to do with each other. One reflected the robust, energetic, philistine world of the student with its own values and mores, rewards and punishments. The other personality was the reflection of the austere, learned, formal world of the faculty. At most the two worlds recognized the boundaries which should not be crossed, and occasionally they waved a greeting across the line. This kind of college lingered on in many places, even into the twentieth century, especially the denominational college in some remote part of the country, very little changed from the model of the earlier time.

But there were some very heavy blows in preparation for the nineteenth-century college. The college in colonial days and the early days of the nation had done surprisingly well in educating the leaders for church and state which the society required. But in the early nineteenth century a rigidity set in, and a great reluctance to make any change. The old classical curriculum had little appeal for Jacksonian democracy, and as the country grew it could no longer meet the insistent needs of a changing society. When the agrarian and industrial revolutions caught up with the country the fact was recognized by Congress in 1862 when it authorized the land-grant colleges, stressing agriculture and mechanics. In the same decade, in answer to the new necessities of the nation, the idea of the university began to take visible form. The country was rapidly becoming industrialized and secularized, and it was keenly aware of the progress of science and technology; it demanded specialists of many kinds, and these the colleges were not capable of producing. But Germany, the intellectual capital of the world at the time, *was* producing them, and thousands of young Americans flocked to the universities there for their training. When these men returned home they brought the idea of the German university with them as a model for our rising universities here. It is significant that the German models were primarily institutions for graduate work and research. In the United States the new universities grew out of the wealthiest and most advanced of our colleges, as at Harvard, Yale, Columbia, Pennsylvania and the state universities (which were up until that time little more than colleges) of the Middle and Far West. A more spectacular development was the creation *de novo* of new and complete universities, with a college as a base as at Johns Hopkins, Cornell, Stanford and Chicago. Perhaps the most devastating blow to the nineteenth-century college was the adoption of the elective system in the 1880's to let into the classical curriculum the developing scientific studies, and ultimately the full panoply of

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social sciences also. As a final blow, in the midst of the twentieth century a still further development has had—and will have in the future—a far-reaching effect upon the shape and internal nature of American education. Since the end of the Second World War, and partly as a result of the war, the educational system of the country has felt profoundly the effects of a second great revolution in scientific and technological thinking. Many of our greatest universities are now being transformed into vast research institutions, sometimes to the neglect or damage to their educational function, with most serious effects on the liberal arts colleges.

Primarily because of our scientific and technological achievements, since the Second World War American education has come to be looked to for leadership by much of the world. At the same time our educational establishment has no clear idea of its direction and its goals; it has no unifying and ordering conception of itself or its purpose. The component parts of the system are each going separate ways. The high school is directed towards a mass egalitarian conception of a literate democracy; the college of liberal arts is torn between general education and early specialization; the graduate and professional schools are moving steadily towards complete specialization and vocationalism. There is little cooperation between the parts at present, but a few beginnings have lately been made. Of the separate parts the college of liberal arts is in the most anomalous, perhaps even untenable, position. A strong case can be made for the idea that the designing of a curriculum and a structure for the liberal arts college which will make it an organic part of a total educational plan is our most urgent problem. Almost equally pressing is the necessity for considering the nature and quality of the training of teachers for the colleges. This is no time for the colleges to be complacent; and the public, too, should cultivate a sympathetic and intelligent understanding of the latent dangers to an institution it values.

The college of liberal arts today exists in two main types: first, there is the relatively small independent college in a semirural setting, which is the direct heir of the nineteenth-century prototype; and second, there is the college which is an integral part of a complex university, situated usually in a metropolitan center such as Boston, New York, Philadelphia, Chicago or San Francisco. The old ideal of the liberal college with its roughly common curriculum and its habits of discipline and order is better preserved, perhaps, in the small independent college than in the college in the university,

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where there are so many rival claims. Both kinds of college, however, have yielded many positions to pressures which are exerted by an affluent, materialistic and egalitarian society. The university colleges set the pace, but the small colleges follow. The tangible results of our social development may be seen in the enormous proliferation of colleges throughout the country, their eager hospitality to all applicants, their often frivolous and scandalous award of scholarships, their vast and indiscriminate programs of study, their casual intellectual standards and their elaborate development of athletics and other side shows. The public, with its low appreciation of learning, thinks of the college as a place where a career in athletics may be begun, good connections may be made, and a glossy social patina may be acquired. For its graduates the college provides a home for a hearty loyalty which one may cherish with a clear conscience and even a sense of virtue. In a violently iconoclastic age one does not easily surrender such a pleasant idolatry.

Though the public mind retains this image of the college, it is a good deal out of touch with the reality in many places. A more critical attitude towards the college has risen among educational leaders in response to international events as well as domestic needs—the Cold War, Sputnik, and reports of a more strenuous, practical and successful system of education in the Soviet Union. Critics who greatly value the liberal tradition have recently asked again such penetrating and far-reaching questions as the following: Can an originally aristocratic conception of a liberal education be adapted and enlarged to serve well a huge society profoundly committed to an egalitarian idea of democracy? Can a liberal curriculum maintain its integrity and yet accommodate such necessities as early specialization and prevocational training? Can liberal education include and make use of the empirical and pragmatic methods now in the ascendancy and yet retain its largeness of view and its sense of pattern? How much of great value in the long run must be sacrificed to immediate necessity? These are all facets of one large question which must be answered if the liberal arts college is to be preserved in a new form to serve the country well, as it has done in the past.

The small, independent liberal arts college today has excellent representatives in every part of the nation. Such colleges are most numerous in the eastern part of the country where the first of such institutions were established and where the admirable additions of the women's colleges later were mainly made. These colleges have been relieved of their isolation by modern modes of communi-

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cation and travel, and for the most part they have freed themselves from denominational ties. At their best they are no longer parochial, but have wedded with much success a free contemporary open-mindedness to the older ideal of a liberal education. They have emerged as modern institutions, providing ample curricula for their students, who are sometimes quite as able as any group of college students in the country. These colleges are especially valuable to the whole educational establishment in America because they have frequently set standards of teaching which the larger institutions have seldom been able to achieve. The chief danger to such colleges is that they may not be able to maintain themselves under modern conditions and costs.

In the large number of colleges, however, the small college of quality is distinctly in the minority. In some parts of the country small colleges that are completely undistinguished are far too numerous. Too frequently their libraries are meager and their laboratories ill-equipped, their curricula are patchy and lacking in design, their standards of teaching hardly existent. They are in fierce competition with each other for students, and usually the most energetic part of such institutions is the recruiting office. Such colleges frequently owe their survival to local, parochial and denominational pride, and one often wishes that several of them would pool their meager resources to make one reasonably adequate institution. But that is hardly in the cards. One trait both the excellent and the poor colleges have in common is that neither has often been willing to engage in bold educational experiments, the good college because of an inherent conservatism, often to the point of complacency; the poor college because of the lack of imaginative leadership, and material resources.

With the rise of the universities late in the nineteenth century there had come into existence a new kind of college, the college as an integral part of a larger educational organization, the university college. And this kind of college has, of course, advantages and problems peculiar to itself. At their best these colleges have more distinguished faculties, more adequate facilities, and far greater resources than the small colleges; but they also have more distractions and more divided aims. In general a few university colleges have provided the models to which the other colleges look. In the first four decades of the twentieth century the universities and their colleges overshadowed the small independent colleges in wealth and prestige and educated such specialists and professionally trained personnel

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as were demanded by the government and industry. They were the granaries of gifted personnel and ideas, but their mood was relaxed. Yet underneath a seemingly calm and assured exterior changes were taking place. In the second and third decades there began to be signs that the balance in the university had shifted in favor of the graduate school and the professional schools, and against the college. This trend was usually fiercely resented by the loyal but imperceptive alumni of the college with strong traditions, and the tension could be felt in any of the older institutions. Perhaps the strain was most severe at the University of Chicago, where President Hutchins called the existence of the typical American college into question and strove to make the college at his university different from anything else in the collegiate world. The abolition of football at Chicago shocked the nation at large; to the academic profession it was probably one of the least disturbing of Mr. Hutchins' reforms.

The growth of universities in answer to the needs of the country had inevitably begun a change of direction and purpose in our leading institutions. Instead of the old ideal of devotion to teaching, the new ideal of the advancement of knowledge became the prime obligation of the institution. The professor became a specialist to a degree hitherto unknown. There have always been specialists and gifted men of ideas and research in our educational institutions, but such men were formerly usually isolated and unappreciated individuals. Such a person was Willard Gibbs at Yale; he would be astonished if he could know now in this later time the honors that have been bestowed upon his name. Of course, no one now will challenge the immense importance of the specialist for the country's health, welfare and safety, nor the obligation of the university to train such men. As Abraham Flexner said in 1930, "It is fashionable to rail at specialization; but the truth is that specialization has brought us to the point we have reached, and more highly specialized intelligence will alone carry us further."[1] It is an ineluctable fact that without the academic specialist we would not have concluded so soon or so successfully the Second World War. But the result has been that now in our universities instead of the isolated scientist or scholar, we have whole departments of specialists serving as a faculty.

The Second World War and its consequences, then, have brought about the gradual conversion in large part of many of our eminent universities to research institutions to the further neglect of their teaching function. The specialists, drawn mainly from the

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university campuses, had created the atomic bomb and inaugurated a new phase in the history of science and technology at such great centers as Los Alamos, Argonne and Oak Ridge. As the usefulness of this activity for safety and health was clearly demonstrated, the government went on to establish and support lavishly such gigantic agencies as the Atomic Energy Commission, the National Science Foundation, the National Institutes of Health and many others for the encouragement of scientific research, and these agencies mainly make use of the universities. Latterly the government has extended its interest to a number of the social sciences. Moreover, because of our newly won eminence among the nations and our programs of aid around the world, specialists and research teams have been sent, most often from the universities and colleges, to all parts of the globe to assist in such diverse matters as agriculture, health, economics and politics. Our huge philanthropic foundations, too, have increased their awards for research and aid at home and abroad. The research professor has become an extremely busy and important person.

This is the expense of greatness, and it is vain to regret the cost. But there is a cost, and it is mainly being paid by the college, whether that college is a unit in the structure of the university or an independent college. In the swift developments since the war both kinds of college are suffering neglect. The new professor as a specialist in international economics or as a research scientist is frequently absent from his university on a mission abroad, or if he is at home he is in his laboratory, where his mind is diverted from the classroom. It is teaching in the college, and sometimes in the graduate school, that has suffered. Only in the humanities does the old ideal of the productive scholar who is at the same time a devoted classroom teacher still flourish. Almost equally unfortunate is the fact that there are fewer first-class persons of intelligence, character and personality concerned with the urgent problems of higher education in all its phases—the wise conduct of the universities and colleges, the health of the various parts, the ordering of the curriculum, the reconciliation of the traditional heritage which has been the substance of liberal education with the empirical and pragmatic methods and insights of a newer conception. These problems are not so imperiously insistent as those of our national safety and health, but in the long run they are matters of very great importance and they cannot be neglected without serious damage to the national welfare.

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In these circumstances it is inevitable that there has been a change in the attitude of the faculties of many institutions towards teaching, and the change has been in the direction of less teaching and more wholesale and casual attention to the student. This trend was hastened by the greatly increased number of students, overtaxed facilities and inflated costs. The decline was most keenly felt in the university colleges, where many adjustments have been made to meet the new conditions. Large lecture courses have become more numerous, television and teaching machines have been resorted to, and a far greater number of graduate students have been employed for the purpose of instruction of undergraduates. Just two or three years ago one of the country's most distinguished universities, but by no means one of the largest, employed 887 graduate students for the instruction of its undergraduates. A common pattern of instruction consists of two lectures a week by a teacher of some experience, with the third hour of discussion conducted by the graduate student. Such courses are by no means necessarily poor; that depends upon the quality and conscientiousness of the lecturer and the interest and skill of the hard-pressed graduate student. From the point of view of the university these arrangements have the advantage of providing stipends for great numbers of graduate students in lieu of fellowships and scholarships. But in this connection a difficulty has arisen: in some fields government agencies have provided so many and such handsome fellowships that in these areas the universities frequently have had to make do with fewer graduate assistants or hire inferior ones for the teaching.

Whatever the quality of the course, a program made up entirely of lectures is an extremely impersonal education, and one wonders if such programs are not substantially responsible for the large number of students who drop out of colleges where such conditions prevail. In most of our colleges, and especially in the larger ones, small courses of the discussion type for freshmen and sophomores have had to be abandoned and as a consequence the variety of programs and the careful personal and academic counseling which such younger students need have not been provided. By the time the student has entered his major field, usually at the beginning of his junior year, he should have developed sufficient motivation, independence and familiarity with local procedures to enable him to manage his own education and personal affairs. And indeed this frequently happens today. One has only to see

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the crowded library reading rooms to assure oneself of the earnestness and competence of the modern undergraduate. Independent study is unquestionably good for the student—and it has the additional virtue of relieving some less conscientious members of the faculty of a good deal of hard work—but he deserves adequate preparation before being thrust into it.

The independent liberal arts colleges which do not engage in graduate training have not yet felt as heavily as the university colleges the changes in their faculties' attitude towards teaching, but they now are beginning to feel the new conditions in the recruitment of their faculties. These colleges have not escaped the pressures of greater numbers of students; nor have they been altogether immune to the demand by government and industry for highly educated experts. This has often made it difficult for such colleges to maintain adequate and competent faculties in all departments. The better of the independent colleges, too, have experienced from the students they admit the demand for more advanced work in the first years of college, and more complete and sophisticated specialization in their later years. One has the feeling that teaching in the independent college has held up reasonably well so far in most departments; but the many threatening pressures, including greatly increased costs in all phases of its operation, are not likely to be less in the future.

A primary task for all colleges of liberal arts at the present time is to rethink and reconstruct the curriculum generously in breadth and depth in the light of the vast expansion of knowledge in our times. The danger inherent in the older, and mainly verbal, liberal education is a loss of vitality and relevance, leading ultimately to stagnation. The danger in the new developments, mainly mathematical and scientific, is loss of any ordered pattern; for the new, held in check too long, has a habit of overwhelming the old and creating a new imbalance. It seems clear that the conventional form of education at the college level must be renovated and enlarged if the whole concept is to be saved. That a balanced curriculum, fair to both the old and the new, must be designed is the conviction of men and women of large minds and sympathies who are citizens of the world and who place a value upon their inner and personal as well as their external social freedom. Beyond such necessary bases of thought as English composition, mathematics and the languages, the older liberating studies in literature, history and philosophy must be amply represented.

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These, taken in depth, are the maturing studies. But the new curriculum must also welcome the tough-minded sciences, which are so effective in encouraging curiosity and clear thinking. As a ticket of admission as liberal studies, however, the sciences themselves must recognize and willingly assume their responsibility as vital parts of a liberal education, and abandon their customary procedure of teaching their elementary courses as the first steps towards a professional degree. Rigorous thought is the essence of science and must not be lost; but neither must the purpose of the student's education at this stage in his career be forgotten, nor the fact that science has a history and a philosophy that give meaning and direction to the whole corpus of its learning. An important principle in an integrated program is that there are no second-class courses. A place must be kept, too, for a modest degree of specialization, for the specialist is here to stay; but that place need not be as all-consuming in the student's last two years as it often is today. With careful planning it could be made broader and at the same time more useful in itself or as a base for advanced work than it now is. Like Milton's prescription for a liberal education, all this is to ask a great deal of the student and of the college, and such a generous education is not often achieved today. But when such a functional and rational curriculum is designed, with flexibility to care for differing abilities, other matters such as the time required and the proper ordering of the component parts may be easily arranged. Such a curriculum can find a broad acceptance, however, only if there is present much academic statesmanship and a willingness in vested interests to yield some of their departmental sovereignty. As a first and fundamental task, then, it is necessary for the statesmen of the colleges to design a new curriculum which will do for our time what the *Trivium* and the *Quadrivium* did for an earlier age.

Knowledge is never static in a world so active in research as ours. Recent physiological studies, now in possession of long-term records, are confirming an impression upon which our high schools and colleges have already acted. In the last hundred years there has been a steady increase in the height and weight of young people in the Western countries, and an almost equally strong trend towards an earlier physical maturity. The educational world, like the public at large, has accepted the fact without being more than dimly aware of the recent studies which provide a strong undergirding for their belief.[2] It seems possible that there

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has been a comparable acceleration in the intellectual maturity of adolescents. At any rate, the factual studies referred to above give reason to the recent admirable movement for granting college credits and advanced placement to high school students who have done well in advanced credit examinations. Courses roughly comparable to elementary college courses are now being given by secondary schools in all parts of the country. Such a development could hardly have taken place and made the progress it has made unless the students in the schools were emotionally and intellectually ready to take on the more difficult work which advanced credit demanded. The launching of Sputnik and the public concern at the achievements reported about Russian education provided the emotional stimulus that was necessary. The excoriating comments on secondary education by Bestor and the sober judgments of Conant have directed the attention of high schools to the more substantial and useful studies—at least for those students who were preparing for the better colleges. But the suspicion remains that the high schools have been lax in their demands upon their students; the reform did not come too soon, and it is still incomplete in its scope as well as in its psychological basis.

The implications of the advanced credit and placement movement are far-reaching for the college. It may well be some years before a true estimate of how effective in the intellectual and emotional development of gifted students such advanced courses may be. In the meanwhile we must steadily ask how satisfactorily high schools can provide such courses, and in what areas. It is already clear, I think, that the more factual and exact subjects, such as the languages and some aspects of the physical sciences and mathematics, are more successfully taken in the early years than the more discursive and inexact studies, such as philosophy and literature. But the high schools aspire to give advanced courses in all fields. In the face of these facts, which bear also upon the curriculum of the colleges, and others that affect their structure, the better colleges, especially those with plentiful applicants, have welcomed advanced credit programs. Harvard College now admits more than 150 students to its sophomore class directly from secondary school, and many other colleges by one device or another permit the able student to graduate in three years. This is done in spite of the enormously expanded body of knowledge. There is no doubt, however, that the movement has

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quickened the spirit of learning in the colleges as well as in the high schools. Are we willing, then, to move to the educational system of France, Germany and the Soviet Union, where the liberal college does not exist?* In any case, the American college is now in a crucial phase of its development and some hard thinking about the future is called for. These problems are almost equally important for the independent college as for the university college.

In fact, it appears that our most sought-after colleges of both kinds are in the position of being squeezed by two different pressures: from below by the improved instruction in the high school because of advanced credits; and from above by the strong trend towards early specialization that is demanded by the graduate and professional schools. In the best colleges in the East, which are usually bellwethers for the nation, three-quarters of the graduating seniors now go on to advanced work in graduate and professional schools, and the bachelor's degree has largely ceased to be a terminal one. To an extent the squeeze has been alleviated by the fact that many graduate and professional schools have abandoned the combined programs in which the student took his last college year in law or medical school; but this is immediately countered by the demand for a greater degree of concentration during the student's last two years in the field to be studied further in the advanced school. What is lost from the student's education in this process of compression and concentration are the liberal and broadening studies which are not immediately useful for obtaining entrance to the advanced school or a well-paid job on graduation. It matters little to the student that the studies he forgoes at the moment are precisely those which will lead to wisdom as he takes his place in the social order, and for happiness

* After the close of the Second World War, France obviously underwent an "agonizing reappraisal" of many of its social institutions, among them its educational system. I was visited by at least two delegations from France enquiring into the nature and procedure of the American college. It was evident that these delegations felt that the American college provided something that the French system lacked and badly needed. I agreed and suggested that the unforced intellectual maturing that was allowed the American student had its practical advantages in matters of initiative and decision; that our team sports and our cooperative activities (which in their imbalance we so decry) might possess a hidden and instinctive wisdom. It should be added that the French system of education has not changed.

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and wholeness in his private life. One reads in *The New York Times* that engineering students at Stanford concentrate upon their engineering subjects in the regular terms and use the relaxed summer sessions for the liberal subjects which the college requires. In the minds of the students the nonprofessional courses are second-class studies. One may think that such students will be less wise and interesting persons than they might be, and possibly less good as engineers. Stanford is not alone in this trend. In many colleges the liberal studies, whose advantages are not immediately apparent, are resisted by students or regarded as secondary fields where the work may be hastily and slightingly done. In this the student is merely reflecting the prevailing temper of his culture and his time, and it avails little to tell him that a sustained study of a foreign language and literature, for example, may prove in after years the most profitable program he could have taken, even vocationally. Equally valuable in the future for him might be the liberal study of such a science as geology, or the understanding of man to be gained from a study of anthropology, history or philosophy. But a warning to the teacher may also be appropriate. It is not enough for him to be steeped in his subject and conscious of its great intrinsic value; he must know and show its integral place in the spectrum of knowledge, and be himself a persuasive exponent of its liberal virtues.

Most serious faculty people today prefer to be associated with a graduate school. This is partly because of the weakness of so many of the country's colleges of liberal arts, and the popular Hollywood image of their frivolity. Writing in 1936, President Robert M. Hutchins could say with a good deal of truth, "Collegiate life suggests that the choices of undergraduates are determined by other considerations than thought. Undoubtedly, fine associations, fine buildings, green grass, good food, and exercise are excellent things for anybody. You will note that they are exactly what is advertised by every resort hotel."[3] The reality has changed very considerably since that date, but the image lingers in the public mind. Therefore, status is achieved by appointment to the graduate faculty, and also a better salary. Yet nowadays in a first-rate college undergraduate teaching is often more interesting and important, for in the college the teacher will be engaged in instructing the brightest minds and the most daring and free spirits among our youth, the leaders of the nation tomorrow in all walks of life. They are not yet as knowledgeable as the graduate student;

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but neither are they as docile. The graduate student is too often a disciple, an embryonic replica in ability, ideas and personality of the professor, and in teaching him there are few surprises. "It is hardly an exaggeration," says Hutchins, "to say that university departments exist to train people to teach in university departments."[4] Nevertheless, the problem of recruiting an adequate faculty is more difficult for the independent college, especially if it is weak or remote, than it is for the university college.

There is, of course, a genuine shortage of highly qualified teachers and scholars to man our institutions of higher education. As we have seen, this is partly because of the great demand upon the profession for research and public service of many kinds—activities that may not be questioned if they are honest. But the present status of the professor is concerned here, too. If he does not teach in the humanities his *amour propre* demands that he have a contract upon which he can spend most of his time; he must also have young men on stipend to help him on with the job. Moreover, if he is invited to join another faculty—a common occurrence as universities scramble for prestige—he often demands a position that requires few teaching duties and liberal sabbatical arrangements. The institution that supports such a professor is fortunate to have him at home and teaching one year in three. Few independent colleges can afford such luxuries.

In recruiting and maintaining young faculty members the university college has a number of advantages, the chief one being that the college is in a university setting. Better salaries for beginning teachers are not always on the side of the university college, but to the ambitious young man the prospects are more alluring. Prestige also is usually on the side of the college in the university. Moreover, the young scholars and scientists who have taken their advanced degrees at a university are easily persuaded to stay there to continue their research in the great libraries and laboratories with which they are familiar. Further, the university college is usually in a large city and offers such cultural attractions as concerts, plays and lectures more plentifully than the college in the country. As the competition among the younger faculty sharpens and the dreaded time for thinning the ranks to make room for even younger men approaches, tension is hard to bear; but at the beginning that is still three or four years away and may never happen. In any case, the university college is a better place from which to move.

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Against these attractions the advantages of the small college seem to be few, and for the greater part intangible. But they are not entirely negligible. The wealthier independent colleges, such as Wesleyan or Amherst in New England, Bryn Mawr or Swarthmore in the Middle Atlantic district, and others like Oberlin, Carleton or Reed can often outbid the university college for younger men in salary and rank; nor are the students of these colleges less able and attractive. The young man or woman of a philosophical temperament may prefer the relative quiet of the small college and shy away from the fierce competition of the university and the insistent demand for instant publication. The compact college community, though it may beget claustrophobia in some, will give others a sense of belonging and possession. It is probable, too, that the young man in the small college will rise faster, be able sooner to teach what he likes, and if he wishes may sooner have an active part in the councils and conduct of the college. Frequently, also, the living conditions in the small college are better for raising a family, and the automobile, airplane and television have relieved the college of much of its isolation. The less wealthy small college, however, especially if it is inhospitable to a generous intellectual freedom, has had to take for its faculty what it can get, and that is sometimes very poor.

Estimates of the quality of a faculty, however, are never grounded on a close inspection of its teaching effectiveness but rather on the well-publicized notion that the more Ph.D.'s a faculty has in its ranks the better it is. This notion is a large and easy assumption, and may be false in the matter of teaching as apart from research, but it is indubitably true that almost all small colleges are eager to have as many doctors of philosophy on their faculties as they can get. It is equally true that the number of Ph.D.'s in these colleges is small and is decreasing year by year. One sometimes wonders why the small college, whose interest is mainly in teaching, values so much the product of the graduate school whose training is so entirely devoted to research. The college has the right and duty to expect from its faculty depth and breadth of learning, power to communicate ideas, and interest in the development of youth. The doctor's degree does not guarantee these qualities. In any case, the less wealthy and less favored college often has a very difficult time in recruiting a competent faculty, and usually it has to settle for less.

A few further observations may be made in the matter of re-

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cruiting a young or able faculty. First, as we have seen, the university college on the whole has the easier task, for the ambitious young scholar and scientist will usually choose the greater opportunity that he sees in the larger institution. The recruitment of older and well-established scholars and scientists is chiefly the concern of universities; the fierce battle for prestige which is prevalent today in the universities has not spread substantially to the colleges, for few of them are willing or able to offer salaries of $25,000 to professors who may be expected to do little teaching. Another point must be noted here. Though the competition for younger men and women is keen in many disciplines, the demand differs from field to field. It is greatest in those fields which are nowadays so needed in research and in public service. These are mathematics and the physical sciences, economics, psychology, anthropology and political science. In these areas it is usually necessary to offer the new Ph.D. the rank and salary of an assistant professor to attract him. But there are occasional shortages of available young teachers, although to a lesser degree, in fields which are new to the academic scene in America or in disciplines in which for some reason not many scholars have been trained in recent years. Examples of the first kind may be seen in Chinese literature or history; of the second kind, surprisingly enough, in the classics and Germanic languages and literatures. A final comment may be made: in the humanities and in some of the social sciences the quality and extent of the institution's library is a matter of much consequence in recruiting a faculty, old or young; the sciences and the more mathematical and newer disciplines depend naturally more on laboratories and computing machines and instruments, and this equipment is standard as the libraries are not. For this reason, as well as for others, the scientist is more mobile and changes his institution with less loss of time and less strain than the humanist.

Given, then, the present trends in higher education in the United States, it may be an interesting exercise to conjecture where we shall be a quarter of a century hence, and especially where the college of liberal arts will be, since its situation is the most urgent at the present time. I have reached the conclusion after much thought that we should not remain in the state of despondency about the American college of liberal arts and sciences that some of its most recent critics have assumed. For together with the fact of constant change there is also present in higher

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education a strong principle of continuity and tradition. But first a few words are pertinent, I think, upon higher education as a whole.

At one extravagant extreme in the national development is the "multiversity" of President Clark Kerr's admiration. This gigantic "city" is a vast collection of heterogeneous communities huddled together under one name. Here there are separate, almost autonomous, schools and institutes with different purposes and qualities. The college of 1900, still the dominant part of higher education in spite of the emerging universities, was rank with personality though lacking in intellectual interests. The multiversity is rife with intellect but has no personality at all. No doubt the country will have a few multiversities, but surely not many, and they will hardly engage the sympathy and understanding of the public, however useful they may be. A few institutions, too, may become purely research institutions for the federal government, and be smaller replicas of the vast research centers at Los Alamos, Livermore, Lincoln or Argonne. Their educational function will be sharply reduced in favor of necessary research. Still other universities no doubt will develop further as parts of a large, complex state system, such as we see in California, Michigan, Florida and elsewhere. Here, a further refinement may be introduced as the heavy pressure of student numbers forces such institutions to abandon or minimize the first two years of college and concentrate their energies upon the junior and senior years. This will require a strong and large system of junior colleges as feeders to the university centers. However useful such a system will undoubtedly be, I am not persuaded that it is suitable for the liberal studies in satisfactory depth, and it will hardly be conducive to the noneducational values of college life. Probably the most typical institution of higher education in 1990, as perhaps it is now, will be the state university of moderate size with a strong, active college, small but substantial graduate and professional schools, and a controlled and limited program in research for the government and for itself.

All the institutions that I have described above are already in embryonic existence, and they may be expected to develop along the lines they have set with ever increasing pace. The ideal for the college of liberal arts and sciences for the future, however, does not lie in any of them. The best hope, and it is not the last hope, lies rather in the strong private universities and colleges of

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long traditions which are profoundly loved. Here, protected from the fiercest pressures of numbers, these institutions may provide a time and a place for the liberal studies, and think in terms of an enriched experience for undergraduates carefully chosen for their significance to the nation in the future. The four-year term of college life has advantages, especially in the matter of a natural and full process of maturing in personality, intellect and wisdom. But there is nothing sacred about the four-year span, and in the past it has often been challenged. The present crisis in the college of liberal arts is a challenge and opportunity as well as a danger. If the optimum advantages are to be gained, the strong university and the strong college must take the time and make the effort, in spite of present pressures of all kinds, to rethink with the utmost care the total process of a liberal education in the college. The general education that usually occupied much of the first years of college has been fractured by the advanced placement movement. The work in the major field which usually took place in the last two years has been largely captured by the graduate and professional schools. If the universities and colleges will put their minds to this task, as I am sure the best of them will do, the chances of creating an exciting and life-giving intellectual climate for the undergraduate in our colleges in the next twenty-five years seems to me excellent. What is needed is a model, or several of them, and if these are provided by the strong university colleges and the best independent colleges the whole establishment of higher education in America will benefit.

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1. Abraham Flexner, *Universities: American, English, German* (New York: 1930), pp. 17–18.
2. See J. M. Tanner, *Education and Physical Growth* (London, 1961), for an illuminating account of this phenomenon.
3. Robert Maynard Hutchins, *The Higher Learning in America* (New Haven, 1936), p. 29.
4. *Ibid.*, p. 36.

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CLARK KERR

The Frantic Race to Remain Contemporary

"THE TRUE American University," David Starr Jordan once observed, "lies in the future." It still does; for American universities have not yet developed their full identity, their unique theory of purpose and function. They still look to older and to foreign models, although less and less; and the day is coming when these models will no longer serve at all.

The American university is currently undergoing its second great transformation. The first occurred during roughly the last quarter of the nineteenth century, when the land grant movement and German intellectualism were together bringing extraordinary change. The current transformation will cover roughly the quarter century after World War II. The university is being called upon to educate previously unimagined numbers of students; to respond to the expanding claims of government and industry and other segments of society as never before; to adapt to and channel new intellectual currents. By the end of this period, there will be a truly American university, an institution unique in world history, an institution not looking to other models but itself serving as a model for universities in other parts of the globe. This is not said in boast. It is simply that the imperatives that are molding the American university are also at work around the world.

Each nation, as it has become influential, has tended to develop the leading intellectual institutions of its world—Greece, the Italian cities, France, Spain, England, Germany, and now the United States. The great universities have developed in the great periods of the great political entities of history. Today, more than ever, education

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is inextricably involved in the quality of a nation. And the university, in particular, has become in America, and in other nations as well, a prime instrument of national purpose. This is new. This is the essence of the transformation now engulfing our universities.

American universities are currently facing four great areas of related adjustments: (1) growth, (2) shifting academic emphases, (3) involvement in the life of society, and (4) response to the new federal involvement. The direction of adjustment in each of these areas is reasonably clear; the detailed arrangements and the timing are not. There are several other areas where adjustments will be necessary but where the direction of adjustment is as yet by no means clear; and four such areas will also be noted below.

Growth

The number of university and college students in the United States will almost double during the 1960's. This addition of three million will duplicate in one decade the growth of the three centuries since Harvard was founded. The proportion of graduate students will rise considerably, and there are already 25,000 post-doctoral students.

Existing university campuses are being enlarged and many new ones founded. The University of California, for example, now has seven campuses and a total enrollment of 65,000 students. Four of those campuses will triple or more in size in the next decade. One campus admitting undergraduates for the first time this fall, and two entirely new campuses admitting students for the first time in 1965, are being planned to accommodate ultimate enrollments of 27,500 each.

But university expansion alone cannot begin to meet the demand for some kind of education beyond the high school level. In the years before World War II, post-high school study was the exception; it is rapidly becoming the norm. In California today four out of every five high school graduates seek further education; soon it will be even more. This great shift in the pattern of American education will call for many more four-year colleges, both public and private. And a particularly large number of junior colleges will be formed as the community college movement becomes nationwide. Problems of differentiation of function will arise among public sectors of higher education—junior colleges, four-year colleges, and universities—as they compete for state support. The State of California has

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already met that problem through legislative adoption of a Master Plan for Higher Education, and other states are working along similar lines. However the total demand for higher education may be parceled out among the public and private institutions of varying types, one fact is clear: this will be the most unprecedented period of campus development in American history, or indeed in the history of the entire world.

To accommodate the great increase in enrollments, many academic calendars are being rearranged, particularly in state-supported institutions, to permit more nearly year-round use of physical facilities. Students will be able to accelerate their work if they wish, and general students will come and go with less reference to their "class"; more of them will drop in and drop out as suits their particular schedules and needs.

There will be some further mechanization of instruction (television, language laboratories, programmed learning) to improve quality and to save faculty time for other endeavors, including more individual work with students. The sciences will almost eagerly embrace these aids to learning. The foreign language departments will be rather reluctant, because these devices can threaten their structure of faculty employment and the recruitment and utilization of graduate students.

Because of the competition for faculty members, salaries will continue to rise; fringe benefits of all sorts will be devised to tie professors to a particular campus. In addition to competition among universities, there is also intensified competition with industry and government. This competition has obvious advantages in raising faculty income, but it has its negative aspects. As the market becomes more active, internal equity will be injured, for some disciplines are much more in demand in the market than others. Teaching loads will be competitively reduced, sometimes to zero, although more teachers are needed and students are complaining about lack of attention. The identification of the professor with his university will be generally loosened—he will become more a member of a free-floating profession. The rules regarding how much time a professor can spend away from his university assignments, and those affecting the sources of his income within the university, will continue to be in great flux.

This current phenomenon of rising salaries and benefits, however, may be of relatively short duration, lasting, perhaps, for the remainder of this decade. Faculty salaries have been catching up

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with incomes in other professions after a historical lag. By 1970, also, the personnel deficit of today may be turning into the surplus of tomorrow as all the new Ph.D.'s roll into the market. A new plateau of compensation may be reached in the 1970's.

In addition to the great expansion of individual institutions of higher learning, there will be an increasing tendency for university centers to cooperate and even coalesce for added strength, particularly in their graduate and research programs. Allan Nevins has put it this way: "Observers of higher education can now foresee the inexorable emergence of an entirely new landscape. It will no longer show us a nation dotted by high academic peaks with lesser hills between; it will be a landscape dominated by mountain ranges." The highest peaks of the future will rise from the highest plateaus.

One such plateau runs from Boston to Washington. At the universities and laboratories situated along this range are found 46 per cent of the American Nobel Prize winners in the sciences and 40 per cent of the members of the National Academy of Sciences. A second range with its peaks runs along the California coast. C. P. Snow has written: "And now the scientific achievement of the United States is moving at a rate we all ought to marvel at. Think of the astonishing constellation of talent, particularly in the physical sciences, all down the California coast, from Berkeley and Stanford to Pasadena and Los Angeles. There is nothing like that concentration of talent anywhere in the world. It sometimes surprises Europeans to realize how much of the pure science of the entire West is being carried out in the United States. Curiously enough, it often surprises Americans too. At a guess, the figure is something like 80 percent, and might easily be higher."

The California mountain range has 36 per cent of the Nobel laureates in science and 20 per cent of the members of the National Academy of Sciences. The Big Ten and Chicago constitute a third range of academic peaks, with 10 per cent of the Nobel laureates and 14 per cent of the members of the National Academy of Sciences. These three groupings of universities—the East Coast, California, and the Big Ten and Chicago—currently produce over three quarters of the doctorates conferred in the United States. Another range may be in the process of development in the Texas-Louisiana area.

This concentration of talent partly follows history—the location of the older private and public universities. Partly it follows industrial strengths and population centers. But it also has its own logic.

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No one university can cover all specialties, or cover them well enough so that there is a sufficient cluster of close intellectual colleagues. The scholar dislikes intellectual isolation, and good scholars tend to swarm together. These swarms are extraordinarily productive environments. No library can be complete, nor any graduate curriculum. Some laboratories, to be well used, must be used by more than one university. Thus the Big Ten and Chicago, through their Committee on Institutional Cooperation, are merging their library resources, creating a "common market" for graduate students, diversifying their research laboratories on a common-use basis, and parceling out foreign language specializations. Something similar is happening in the University of California system, and between Berkeley and Stanford. Harvard and M.I.T., Princeton and Pennsylvania, among others, run joint research enterprises. These clustering universities in turn have clustering around them scientifically oriented industrial and governmental enterprises. To match the drawing power of the great metropolis, there now arrives the Ideopolis. The isolated mountain can no longer dominate the landscape; the constellation is greater than the single star and adds to the brightness of the sky.

The rate of growth being forced upon American universities and colleges by the surging enrollment wave will present difficult problems. As President Johnson said in his 1964 Commencement address at the University of Michigan: ". . . more classrooms and more teachers are not enough. We must seek an educational system which grows in excellence as it grows in size." A period of rapid growth is necessarily a period of both flexibility and ingenuity. Institutions can readily adopt on new campuses ideas and programs that would require costly reorganization on older campuses. The University of California, for example, is building its new Santa Cruz campus as a series of small residential colleges, each with its own subject field orientation. The University's new Irvine campus will explore ways of involving organized research units in the formal process of instruction. The new San Diego campus of the university will subdivide its ultimate enrollment of 27,500 students into a series of smaller colleges, with groups of four such colleges constituting largely self-contained sub-campuses of varying academic emphases. The University of the Pacific, in Stockton, California, has established a new residential college in which the entire curriculum is conducted in Spanish. Thus the enrollment explosion may bring unusual opportunities for colleges and universities, along with the heavy burden of numbers.

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The current surge in higher education is not, of course, unique to the United States. In Canada the proportion of eighteen- to twenty-one-year olds in higher education is expected to double in the decade from 1962 to 1972. In France the total enrollment in higher education is expected to soar from around 200,000 now to 500,000 by 1970. In Britain, the much-discussed Robbins Committee Report recommends doubling the number of universities by 1980. These figures reflect the rapidly growing pressures resulting from a vast increase in secondary enrollments throughout much of the world. The decade of the 1950's has seen a world increase of 81 per cent in secondary enrollments and an increase of 71 per cent in college enrollments.

The data both from this country and abroad clearly indicate that we are witnessing everywhere the demise of two long-held notions: that higher education ought to be restricted to a small elite minority, and that only a small percentage of a country's population is capable of benefiting from some kind of higher education. Growth is having quite uneven impacts on American universities. Some, and they are almost always private, are building walls around themselves as aristocratic enclaves protected from the swirling currents of the population explosion. Others, and they are mostly public, are engulfed with more than their share of accommodation to the new hordes, that do not wish to be barbarous, advancing through their gates. The aristocratic enclave offers refuge to the faculty member who wishes protection from the new invasion, and many do; but it will become a more and more isolated element within the society of the future. The university with the open door will suffer the pangs of adjustment, but it will become in the process a more central element in a dynamic society. The one will be a pleasant place to be but increasingly out of tune with the surrounding society. The other will be a less pleasant place to live but will provide a more challenging and exciting environment, and will be more a part of the evolving life around it. Each will have its place, but the places they occupy will grow farther and farther apart.

Shifting Academic Emphases

A second major factor in the changing scene for American higher education is that knowledge is exploding along with population. There is also an explosion in the need for certain skills. The university is responding to all these explosions.

The vastly increased needs for engineers, scientists, and physi-

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cians will draw great resources to these areas of the university. Also, some new professions are being born. Others are becoming more formally professional, for example, business administration and social work. The university becomes the chief port of entry for these professions. In fact a profession gains its identity by making the university the port of entry. This creates new roles for education; but it is also part of the process of freezing the structure of the occupational pyramid and assuring that the well-behaved do advance, even if the geniuses do not. The university is used as an egg-candling device; and it is, perhaps, a better one than any other that can be devised, but the process takes some of the adventure out of occupational survival, and does for some professions what the closed shop has done for some unions. The life of the universities for a thousand years has been tied into the recognized professions in the surrounding society, and the universities will continue to respond as new professions arise.

The fastest-growing intellectual field today is biology. Here there is a veritable revolution where the doctrine of evolution once reigned supreme. To the classifying efforts of the past are being added the new analytical methods of the present, often drawn from chemistry and physics. There are levels of complexity to be explored in all living structures. The "code of life" can now be read; soon it will be understood, and soon after that, used. It is an intellectual discovery of unique and staggering proportions. The secrets of the atom, much as they have changed and are changing human activity on this planet, may hold no greater significance than the secrets still hidden in the genetic code. If the first half of the twentieth century may be said to have belonged to the physical sciences, the second half may well belong to the biological. Resources within the universities will be poured into the new biology and into the resulting new medicine and agriculture, well supported though medicine and agriculture already are. Medical education and research may be, in particular, on the threshold of revolutionary change.

Another field ready to bloom is that of the creative arts, hitherto the ugly duckling or Cinderella of the academic world. America is bursting with creativity in painting, music, literature, the theater, with a vigor equaled in few other parts of the world today. Italy, France, Spain, Germany, Russia, England, the Low Countries have had great periods of cultural flowering. America is having one now. In the arts the universities have been more hospitable to the his-

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torian and the critic than to the creator; the latter has found his havens elsewhere. Yet it is the creativity of science that has given the sciences their prestige in the university. Perhaps creativity will do the same again for the humanities, though there may be less new to create than has recently been true in science, and though the tests of value are far less precise. A very important role remains for the historian of past ages of creativity and for the critic of the current productions. But the universities need to find ways also to accommodate pure creative effort if they are to have places on stage as well as in the wings and in the audience in the great drama of cultural growth now playing on the American stage.

These possibilities for expansion—in the training of engineers, scientists, physicians, and the newer professionals, in biology, and in the creative arts, among various others—raise the problem of balance. As James Bryant Conant has noted, the Western world has had for a thousand years a continuing problem of "keeping a balance between the advancement of knowledge, professional education, general education, and the demands of student life."

But the balance is always changing; this is the unbalancing reality. The balance is not equal treatment, the provision of equal time in some mechanical and eternal way between teaching and research, or between the humanities and science. The dynamics of balance did not give equal treatment to the available scientist in Padua in 1300 when Giotto was painting his chapel, or to the available artist in Padua in 1600 when Galileo was lecturing from his crude platform. Balance cannot be determined on the scales by blind justice, field versus field and activity versus activity.

The essence of balance is to match support with the intellectual creativity of subject fields; with the need for skills of the highest level; with the kinds of expert service that society currently most requires. None of these measures is constant. Balance requires, therefore, a shifting set of judgments which relates facilities and attention to the possibilities inherent in each field, each skill, each activity at that moment of time in that environment, yet preserves for all fields their essential integrity. To know balance is to know the potential creativity, the potential productivity, the potential contribution of each competing activity in an unfolding pattern of time and an evolving landscape of environment. To know balance is to know more than anyone can ever know in advance. But decisions must nevertheless be made, and time will tell how well. The only certainly wrong decision is that the balance of today must be pre-

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served for tomorrow. Where will the world's work and the university's work best be done? The answer to that question is the true definition of balance.

Involvement in the Life of Society

The third great change affecting the contemporary university is its thorough-going involvement in the nation's daily life. At the heart of this involvement is the growth of the "knowledge industry," which is coming to permeate government and business and to draw into it more and more people raised to higher and higher levels of skill. The production, distribution, and consumption of "knowledge" in all its forms is said to account for 29 per cent of the gross national product, according to Fritz Machlup's calculations; and "knowledge production" is growing at about twice the rate of the rest of the economy. Knowledge has certainly never in history been so central to the conduct of an entire society. What the railroads did for the second half of the last century and the automobile for the first half of this century may be done for the second half of this century by the knowledge industry: that is, to serve as the focal point for national growth. And the university is at the center of the knowledge process.

So the campus and society are undergoing a somewhat reluctant and cautious merger, already well advanced in some fields. M.I.T. is at least as closely related to industry and government as Iowa State ever was to agriculture. Indeed, universities have become "bait" to be dangled in front of industry, with drawing power greater than low taxes or cheap labor. Route 128 around Boston and the great developing industrial complexes in the San Francisco Bay area and southern California reflect the universities in these areas. The Gilpatric report for the Department of Defense explained that 41 per cent of defense contracts for research in the fiscal year 1961 were concentrated in California, 12 per cent in New York, and 6 per cent in Massachusetts, for a total of nearly 60 per cent, in part because these were also "centers of learning." Sterling Forest outside New York City seeks to attract industry by location next to a new university campus. In California, new industrial laboratories were located next to two new university campuses before the first building was built on either of these campuses. Sometimes industry will reach into a university laboratory to extract the newest ideas almost before they are born. Instead of waiting outside the gates,

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agents are working the corridors. They also work the placement offices. And the university, in turn, reaches into industry, as through the Stanford Research Institute.

The university and segments of industry are becoming more alike. As the university becomes tied into the world of work, the professor—at least in the natural and some of the social sciences—takes on the characteristics of an entrepreneur. Industry, with its scientists and technicians, learns an uncomfortable bit about academic freedom and the handling of intellectual personnel. The two worlds are merging physically and psychologically.

The rapid production of new knowledge has given new significance to university extension slogans about "life-long learning." Television makes it possible for extension to reach into literally every home; the boundaries of the university are stretched to embrace all of society. The student becomes alumnus and the alumnus continues as student; the graduate enters the outside world and the public enters the classroom and the laboratory. Knowledge has the terrifying potential of becoming popular, opening a Pandora's box.

Extension divisions are proving to be increasingly effective administrative devices for linking campus and community in the further pursuit of knowledge. Freer of traditions and rules than regular university academic departments, extension units can respond quickly and in a variety of patterns to meet society's needs for current information and training. Professional schools and colleges, in particular, are making widespread use of extension programs for "refresher" and "continuing education" courses for the active practitioners in their fields. University of California Extension, for example, now enrolls in its courses one of every three lawyers and one of every six physicians in the state. Its total enrollment now numbers some 200,000 students, and it sponsors a remarkably wide range of academic activities including workshops, resident seminars and conferences, theater groups, symposia attracting participants of world renown, and even, recently, a notable scientific expedition to the Galapagos Islands. During the summer of 1964, in response to the growing concern with problems of school integration, University Extension was able to present several short-term workshops and courses on this urgent subject. The new role for knowledge is bringing a new and potentially quite exciting role for extension divisions in American higher education.

The campus becomes a center for cultural life; it has a ready-

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made audience in its students and faculty and it has the physical facilities. Persons attracted by the performing and visual arts and the lectures come to live around the campus—also assorted crackpots. As the downtown area in some cities decays, the campus takes its place as the cultural center of the community. A new dimension has been added to the land grant idea of service.

The New Deal took professors to Washington from many campuses, the New Frontier from more than just one. In Wisconsin before World War I, the campus and the state house in Madison were exceptionally close. Today the campus is being drawn to the city hall and the state capitol as never before. The politicians need new ideas to meet the new problems; the agencies need expert advice on how to handle the old. The professor can supply both. Keynes concluded his *General Theory* as follows: ". . . the ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back. I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas." As, for example, the ideas of Keynes.

The university must range itself on the side of intelligent solutions to sometimes unintelligent questions. These questions more and more arise from abroad as well as at home; and the quality of the answers has been made all the more crucial in a world swept by Communist and nationalist revolutions.

There are those who fear the further involvement of the university in the life of society. They fear that the university will lose its objectivity and its freedom. But society is more desirous of objectivity and more tolerant of freedom than it used to be. The university can be further ahead of the times and further behind the times, further to the left of the public and further to the right of the public—and still keep its equilibrium—than was ever the case before, although problems in this regard are not yet entirely unknown. There are those who fear that the university will be drawn too far from basic to applied research and from applied research to application itself. But the lines dividing these never have been entirely clear, and much new knowledge has been gen-

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erated at the borders of basic and applied research, and even of applied knowledge and its application. Whitehead once wrote of the creative margin when the "adventure of thought" met "the adventure of action."

Involvement with the Federal Government

Growth and shifting emphases and involvement in society all take money; and which universities get it in the largest quantities will help determine which of them excel a decade or two hence. Will federal support be spent according to merit or according to political power? Will private donors continue to do as well as they recently have done for those universities that have done well already? Will the states find new sources of revenue or will their expenditures be held under a lid of no new taxes? The answers to these questions will help predict the standings on the next rating scale of universities.

Of key importance to American universities is the role of the federal government, particularly through federal support of scientific research. This support, which received its great impetus during and after World War II, has already changed the face of the leading American universities almost as much as did the land grant program a century earlier. Federal support has today become a major factor in the total performance of many universities, and the sums involved are substantial. Higher education in 1960 received about $1.5 billion from the federal government—a hundredfold increase in twenty years. About one third of this $1.5 billion was for university-affiliated research centers; about one third for project research within universities; and about one third for other things, such as residence hall loans, scholarships, and teaching programs. This last third was expended at colleges as well as universities, but the first two thirds almost exclusively at universities, and at relatively few of them.

The $1 billion for research, though only 10 per cent of total federal support for research and development, accounted for 75 per cent of all university expenditures on research and 15 per cent of total university budgets. Clearly the shape and nature of university research are profoundly affected by federal monies. The effects of this extensive federal aid and the new problems that have arisen as a consequence are many and varied, but the more important of them might be grouped under the two general headings of "federal influence" and "balance."

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(1). Federal control as a substantive issue is, as Sidney Hook has said, a "red herring." With a few exceptions—the generally necessary exception of secrecy in certain types of work, and the unnecessary exception of the disclaimer affidavit once required by the National Defense Education Act—there has been no control in any deleterious sense. The real problem is not one of federal control but of federal influence. A federal agency offers a project. A university need not accept—but, as a practical matter, it usually does. Out of this reality have followed many of the consequences of federal aid for the universities; and they have been substantial. That they are subtle, slowly cumulative and gentlemanly makes them all the more potent.

A university's control over its own destiny has thus been substantially reduced. University funds from tuition and fees, gifts and endowments, and state sources go through the usual budget-making procedures and their assignment is subject to review in accordance with internal policy. Federal research funds, however, are usually negotiated by the individual scholar with the particular agency, and so bypass the usual review process. Thus 20 to 50 to 80 per cent of a university's expenditures may be handled outside the normal channels. These funds in turn commit some of the university's own funds; they influence the assignment of space; they determine the distribution of time between teaching and research; to a large extent they establish the areas in which the university grows the fastest. Almost imperceptibly, a university is changed.

The authority of the department chairman, the dean, the president is thereby reduced; so also is the role of faculty government. This may have its advantages. The university's internal process of distributing funds would be generally less selective and less flexible than the federal research project approach. Within a university, the tendency is to give each faculty member about the same opportunity and once having given it to keep giving it thereafter; but the project method allows more attention to exceptional merit and has the advantage that all projects may end some time. Additionally, federal agencies are more responsive to particular national needs than the universities would be, given the same amount of money to spend according to their own priority system.

There are, however, clearly detrimental effects. Some faculty members come to use the pressure of their agency contacts against their university. They may try to force the establishment of a new administrative unit or the assignment of land for their own special

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building, in defiance of general university policy or priorities. These pressures, of course, should be withstood; they speak well neither of the professor nor of the agency. Also, some faculty members tend to shift their identification and loyalty from their university to the agency in Washington. The agency becomes the new alma mater. There are especially acute problems when the agency insists on the tie-in sale (if we do this for you, then you must do that for us) or when it requires frequent and detailed progress reports. Then the university really is less than a free agent. It all becomes a kind of "putting-out" system with the agency taking the place of the merchant-capitalist of old.

(2). The question of "balance" in federal aid arises in relation both to support of specific fields within an institution and to distribution of support among institutions of higher learning. Among the totality of university functions, federal support has been heavily concentrated on research and on graduate and postdoctoral training in fields of national interest. Expenditures have been largely restricted to the physical and biomedical sciences, and to engineering, with only about 3 per cent for the social sciences and hardly any support for the humanities.

All this is said to have destroyed the "balance" among fields, and it is generally concluded that something should be done about it. The balance among fields, however, has never been a static thing. If it were, philosophy, theology, and the classics would still be the dominant areas of study, as they have not been for a long time. Assuming that the balance of 1942, say, was appropriate for 1942, this does not mean it would have been appropriate for 1962. It is not enough to say that the old "balance" has been destroyed. The real question is what should be the proper balance today. It is clear that the flowering of the Renaissance should have affected the "balance" in the sixteenth century. It would seem likely that the splitting of the atom and the deciphering of the genetic code should in their turn affect the balance of the twentieth century. We should expect the most money and the brightest students and the greatest prestige to follow the most exciting new ideas. By and large they have done so, and this is one way of defining the nature of balance.

The real question, it seems to me, is not one of balance in any historical or monetary sense, but rather what is most appropriate to each field in each period. "All fields are equal, only some are more equal than others." There should be no effort to do the same things in the same amounts for each field. Each should receive

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support in accordance with its current potentialities, and potentialities vary. There are no timeless priorities.

Federal research expenditures have also been heavily focused on relatively few institutions. If both project research and large research centers are included, six universities received 57 per cent of the funds in a recent fiscal year, and twenty universities received 79 per cent. If project research alone is considered, the figures are 28 and 54 per cent. As a percentage of total university expenditures for all purposes among the leading twenty recipients, federal funds have amounted to 20 to 50 per cent when project research alone is counted, and from 20 to over 80 per cent when the research centers are added. These twenty universities are only about one tenth of all universities in the United States. They constitute the primary "federal grant" universities.

The project approach almost automatically led to concentration of federal research effort in a relatively few universities. The universities best equipped to undertake the research were also those with the faculty and facilities to provide for the training of Ph.D.'s. It is no coincidence that the six universities with a little more than 25 per cent of project funds graduated about 25 per cent of the Ph.D.'s; and a similar situation prevails for the top twenty universities. If "only the best will do," this concentration of effort is inevitable. A different result would have been quite surprising.

The concentration of effort has undoubtedly strengthened the facilities and improved the quality of faculties of universities already in the front rank. It has probably widened the gap between those of the first and those of the second and third ranks. It may, in fact, have actually injured universities of the second and third ranks and some colleges by turning their potential faculty members into research personnel in the front-rank universities. The good are better; the poor may well be worse. And it has greatly accentuated the differences between colleges and universities.

The general policy of federal agencies in allocating research grants to universities for the last two decades has been one of "seeking excellence wherever it is." The period has been one of what I have called "intuitive imbalance." We are now clearly entering a new phase of federal support policy, one that might be called "bureaucratic balance."

The new balance calls for developing a larger number of outstanding centers of graduate instruction and research. The Seaborg report of 1960 suggested expansion from the present fifteen or twenty

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centers to thirty or forty over a fifteen-year period. The National Education Improvement Act of 1963 envisaged expansion from twenty to seventy. Teaching is being emphasized along with research. Summer refresher courses for teachers of science, improvement of science textbooks, and language laboratories are programs already established. The National Science Foundation has a large effort under way to improve and renovate equipment for undergraduate teaching in the physical sciences. Undergraduates, as well as graduate students, are being assisted by loans and scholarships. The social sciences are receiving increasing sums of money. More funds are being granted to colleges as well as to universities, and to universities of all ranks.

A particularly significant step in the direction of broadening institutional support is the new science development program announced in the spring of 1964 by the National Science Foundation. This program is specifically designed to raise the overall quality of science programs in good institutions to the level of excellent. Distinguished institutions are excluded: "institutions already recognized as being outstanding in science should continue to depend on existing programs for assistance."

Undergraduate as well as graduate institutions will be eligible, and the grants (up to $5 million per institution) may be used in any way the institution chooses to strengthen single departments or related departments, to create new departments, or to improve the entire science program. *Science* magazine, commenting on the NSF plan, said, "it is probably safe to say that the success or failure of this program is going to have a far-reaching influence on the evolution of higher education in the United States."

The approach to a university "as an institution" has interesting implications. If additional universities are to be selected to become centers of strength in research and graduate instruction, then it will be necessary for the federal government to be concerned with the "general health of the institution." This will be a notable departure from historical practice, except in agriculture. If we are to move toward federal orientation to the "total function of the university," then the University Grants Committee in Great Britain is the outstanding precedent, and one that has received some support in the United States. However, there are only about thirty universities in Great Britain, and it is clear what is and what is not a university. Additionally, the University Grants Committee has come to exercise more influence over the establishment of new

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programs, the cost and size and even the appearance of new buildings, the equalization of faculty salaries among institutions, and the determination of admission policies than would currently be acceptable if it came from the federal government in this country.

Some hard choices must be faced. The decentralized project approach of the last two decades has much to recommend it. It is selective on merit, flexible in accordance with quality of performance, and responsive to national goals. The universities and their scholars retain substantial freedom. But such dominant reliance on the project approach is no longer likely. It is said that support to institutions as such will "give a university the necessary autonomy" and will permit dispersion of effort and better balance in several directions. It is difficult, however, to assess the merit of a total institution as complex as a modern university. One alternative is to rely on a formula, as in the case of agriculture in the land grant institutions. Another is to be guided by political influence; and this is increasingly happening. Inter-university competition is being taken from the quasi-academic arena of the agency committee to the legislative halls.

The partnership of the federal government with higher education and particularly with the federal grant universities over the last two decades has been enormously productive in enlarging the pool of scientific ideas and skills. Now we are entering a new phase of widening and deepening relationships. This new phase can carry the American commitment to education to new heights of endeavor. It can also preserve the traditional freedom of higher education from excessive control. It can enlarge the horizons of equality of opportunity. It can maintain and even increase the margin for excellence. The challenge is to make certain it does all these things.

However this turns out, the scene of American higher education will continue to be marked by great variety, and this is one of its great strengths. The large and the small, the private and the public, the general and the specialized all add their share to overall excellence. The total system is extraordinarily flexible, decentralized, competitive—and productive. The new can be tried, the old tested with considerable skill and alacrity. Pluralism in higher education matches the pluralistic American society. The general test of higher education is not how much is done poorly, and some is; rather it is how much is done superbly, and a great deal is, to the nation's great benefit.

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Changes Still to Come

But there are some problems still to be fully faced; and they are problems of consequence.

(1). One is the improvement of undergraduate instruction in the university. The much-advertised conflict between teaching and research puts the problem the wrong way. The teaching of graduate students is so closely tied to research that if research is improved, graduate instruction is almost bound to be improved also. And the almost universal experience seems to be that federal research support has improved graduate instruction. At the undergraduate level, however, a "subtle discounting of the teaching process" has been aided and abetted.

The reasons for the general deterioration of undergraduate teaching are several. Teaching loads and student contact hours have been reduced. Faculty members are more frequently on leave or temporarily away from the campus; some are never more than temporarily on campus. More of the instruction falls to teachers who are not members of the regular faculty. The best graduate students prefer fellowships and research assistantships to teaching assistantships. Postdoctoral fellows who might fill the gap usually do not teach. Average class size has been increasing.

There seems to be a "point of no return" after which research, consulting, graduate instruction become so absorbing that faculty efforts can no longer be concentrated on undergraduate instruction as they once were. This process has been going on for a long time; federal research funds have intensified it. As a consequence, undergraduate education in the large university is more likely to be acceptable than outstanding; educational policy from the undergraduate point of view is largely neglected.

Improvement of undergraduate instruction will require the solution of many sub-problems: how to give adequate recognition to the teaching skill as well as to the research performance of the faculty; how to create a curriculum that serves the needs of the student as well as the research interests of the teacher; how to prepare the generalist as well as the specialist in an age of specialization looking for better generalizations; how to treat the individual student as a unique human being in the mass student body; how to make the university seem smaller even as it grows larger; how to establish a range of contact between faculty and students broader than the one-way route across the lectern or through the television

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screen; how to raise educational policy again to the forefront of faculty concerns.

(2). Another major task is to create a more unified intellectual world. We need to make contact between the two, the three, the many cultures; to open channels of intelligent conversation across the disciplines and divisions; to close the gap between C. P. Snow's "Luddites" and scientists; to answer fragmentation with general theories and sensitivities. Even philosophy, which once was the hub of the intellectual universe, is now itself fragmented into such diverse specialities as mathematics and semantics. However, the physical sciences are drawing together as new discoveries create more basic general theories; the biological sciences may be pulled together in the process now going on; the social sciences might be unified around the study of organizations and the relations of individuals to and within them. Biochemistry and social psychology may come to be central focalizing fields. As knowledge is drawn together, if in fact it is, a faculty may again become a community of masters; but "a sense of the unity . . . of all knowledge" is still a very long way off.

(3). A third problem is to relate administration more directly to individual faculty and students in the massive institution. We need to decentralize below the campus level to the operating agencies; to make the collective faculty a more vital, dynamic, progressive force as it now is only at the departmental level; to bridge the growing chasm between the department that does the teaching and the institute that does the research, with the faculty member torn between; to make the old departments and divisions more compatible with the new divisions of knowledge; to make it possible for an institution to see itself in totality rather than just piecemeal and in the sweep of history rather than just at a moment of time; to bring an understanding of both internal and external realities to all those intimately related to the process, so that there may be greater understanding; to see to it that administration serves and stimulates rather than rules the institution, that it is expendable when necessary and flexible all the time; to assure that the university can do better what it does best; to solve the whole range of governmental problems within the university.

(4). Additionally, there is the urgent issue of how to preserve a margin for excellence in a populist society, when more and more of the money is being spent on behalf of all of the people. The great university is of necessity elitist—the elite of merit—but it

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operates in an environment dedicated to an egalitarian philosophy. How may the contribution of the elite be made clear to the egalitarians, and how may an aristocracy of intellect justify itself to a democracy of all men? It was equality of opportunity, not equality *per se,* that animated the founding fathers and the progress of the American system; but the forces of populist equality have never been silent, the battle between Jeffersonianism and Jacksonianism never finally settled.

George Beadle, president of the University of Chicago, once implied that the very large American university (but not his own) might be like the dinosaur which "became extinct because he grew larger and larger and then sacrificed the evolutionary flexibility he needed to meet changing conditions"; its body became too large for its brain. David Riesman has said that the leading American universities are "directionless . . . as far as major innovations are concerned"; they have run out of foreign models to imitate; they have lost their "ferment." The fact is that they are not directionless; they have been moving in clear directions and with considerable speed. These directions, however, have not been set as much by the university's visions of its destiny as by the external environment, including the federal government, the foundations, the surrounding and sometimes engulfing industry.

But the really new problems of today and tomorrow may lend themselves less to solutions by external authority; they may be inherently problems for internal resolution. And these solutions, if they are to come, are more likely to emerge on the campuses of those old, private universities which have prided themselves on control of their own destiny, and on the totally new campuses of the state universities in America (and the new public universities in Britain). The university for the twenty-first century is more likely to emerge from these environments than from any others. Out of the pride of the old and the vacuum of the new may come the means to make undergraduate life more exciting, intellectual discourse more meaningful, administration more human. And perhaps there will arise a more dynamic demonstration of how excellence makes democracy more vital and its survival more assured. Then the contemporary American university may indeed rise to "the heights of the times." Then it may demonstrate that it has a mind as well as a body.

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W. ALLEN WALLIS

Centripetal and Centrifugal Forces in University Organization[1]

THE PEOPLE who constitute a university differ widely in knowledge, skill, wisdom, taste, culture, and purposes. This heterogeneity has been dramatized recently by C. P. Snow's phrase, "the two cultures," by Clark Kerr's discussion of the "multiversity," by Robert Hutchins's plaint, "Everybody specializes. There can be no academic community. . . ." The tasks carried out in universities range from profound consideration of the human condition to technical details about sewerage.

The work of all these dissimilar persons in unrelated tasks can be viewed as a matter of organization or communication. Some of the principles, or at least precepts, that apply to organization and communication in general are relevant, and even those that are not may nevertheless be illuminating, in considering universities.

Any organization must have some means of setting its goals: It must decide what to do, in what proportions, and with what priorities. It must appraise the degree to which primary purposes are advanced by alternative secondary goals.[2] Any organization must arrange to carry on the activities that will accomplish its purposes: It must find people, buildings, and equipment, combine them, and assign them to various tasks. Any organization must arrange to disseminate its product to people outside the organization: It must distribute its output among customers, clients, readers, students, and other beneficiaries.

These three functions—formulating objectives, directing activities, disseminating results—can be accomplished through a system of caste, status, and tradition, as in a beehive or a feudal society; or through a system of orders from an individual at the top by way of a hierarchy of ranks, as in an army or an authoritarian

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government; or through a network of directions and regulations, as in a bureaucracy or a mercantilist state; or through individuals following their own judgments, as in a traditional university or a laissez-faire economy.

Any of these types of organization can be looked on as a communication system. Indeed, the differences in the effectiveness with which organizations accomplish their functions are largely related to differences in various systems of communication.[3]

In any organization, two quite different kinds of information must be brought together. On the one hand, there must be broad, general information about the overall purposes of the organization and the degree to which any one purpose should be pursued at the expense of others—information, in short, about the organization's values and priorities. On the other hand, there must be highly specific, infinitely detailed information about the capacities and limitations of individuals, about interrelations among individuals, about materials and technology, about the extent to which some purposes are impeded by advancing others. From the combination of these two kinds of information, about institutional goals and individual capacities, the people and resources of the institution are organized to carry out the three functions: deciding what to do, arranging for it to be done, and distributing the results.

In a centralized organization—one that is authoritarian and hierarchical—information about individual capacities and details of time and place is transmitted toward the top or center. There the information is juxtaposed to the goals of the organization, which are established at the center. Decisions are made at the center, and instructions are transmitted from the center toward the individuals who will carry them out. Sanctions for individual compliance tend to be mainly in the form of penalties imposed from the center.

In a decentralized organization—one that is individualistic and laissez-faire—information on institutional goals is transmitted directly to individuals, often without ever having been formulated, or even collected, at a center. Individuals then decide what they will do in the light of this information, together with their direct knowledge of their own capacities, opportunities for coöperation, and access to materials and technology. Sanctions for advancing institutional goals tend to be mainly the incentive of rewards, not dispensed from the center but conferred by other individuals.

The great advantage of a centralized organization is that it is predictable and reliable. It can be controlled and directed. It can

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assume responsibility for bringing about a prescribed result. Correspondingly, however, a centralized organization has little ability to adapt (in the sense of developing novel responses to unprecedented conditions) and none to adapt quickly. The great advantage of a decentralized organization is its adaptability, both in the sense of speed and in the sense of making many simultaneous adjustments to details of infinite and unanticipated variety. Correspondingly, a decentralized organization is not well suited to accepting responsibility for prescribed performance.

The modern university finds itself increasingly betwixt and between. Traditionally, we think of the university as a sequestered cloister, an ivory tower, remote from hustle and bustle, turbulent cross-pressures, conflicting interests, and a sense of urgency. From this view of the university grows our traditional concept of total laissez-faire that we refer to as academic freedom. It is a freedom granted not as a special privilege to professors, but as the best instrument through which universities can obtain what they want from professors, namely, pursuit of truth wherever the pursuit may take them, and full disclosure of findings with no regard to the consequences. Traditionally, the university itself, not any outsider, sets its own goals, establishes its own standards, charts its own paths; and it does this most effectively by delegation to the professors—not even to the faculty as a group, but to the professors individually.

Today universities, besides trying to preserve their traditional role, have become important wheelers and dealers in affairs large and small. They accept, indeed seek, assignments (if accompanied by funds) from businesses, governments, foundations, or individuals to carry out specified missions on stated schedules. At times, they even agree to keep the results secret, for the exclusive benefit of the client. Only a little of the money they accept is for the narrowest purposes I have indicated, but comparatively little is offered to them for purposes as broad as those traditionally associated with universities.

Eric Ashby has described this dual nature of the contemporary university:

> ". . . the word university stands for something unique and precious in European society: a leisurely and urbane attitude to scholarship, exemption from the obligation to use knowledge for practical ends, a sense of perspective which accompanies the broad horizon and the distant view, and opportunity to give undivided loyalty to the kingdom of the mind. [At the same time] . . . the university is an institution with urgent

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and essential obligations to modern society; a place to which society entrusts its most intelligent young people and from which it expects to receive its most highly trained citizens; a place which society regards as the pace-maker for scientific research and technological progress."[4]

Many of the organizational questions confronting the contemporary university grow out of this duality, out of the presence at the same time and same place of activities of both kinds: activities that are self-generated, problem-solving, exploratory, innovative, and scholarly, which are best organized atomistically, with a maximum of laissez-faire, individual responsibility, and academic freedom; and activities that are originated outside, undertake to accomplish specific tasks, and involve the kind of responsibility that a professional man owes his client, which must necessarily be organized with some degree of authority to see that obligations to the client are met.

The contrast can be illustrated by comparing a medical school with an academic department. In a medical school—indeed, in professional schools generally—it is usual for the head of a department to have some authority over the other professors in his department, for the professors to have some authority over the associate professors, and so on. This is especially clear in a clinical department, where the health and occasionally the very lives of patients or staff may be at stake. There is no trace of academic freedom or laissez-faire in an operating room, even if the surgery in progress has far-reaching implications for the advance of knowledge.

In a traditional academic department in the sciences or humanities, higher rank may bring a few minor and marginal perquisites, such as meeting classes at preferred hours and places, and it may even bring the right to discuss a little with lower-ranking men the contents of their courses. It does not, however, confer any authority over the research, and very little over the teaching, of department members of lower rank.

It is tempting to say that the dividing line runs between those parts of the university whose purpose is to advance knowledge and those parts whose purpose is to apply knowledge, with the humanities and sciences representing research and the professional schools representing application. Perhaps in the past the various parts of a university could be dichotomized on this basis. Medical schools at the beginning of the century, judging by Flexner's writings, were essentially "how-to-do-it" affairs, not only devoid of research but deficient in the scientific knowledge already in existence.

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In engineering, Massachusetts Institute of Technology, California Institute of Technology, and Carnegie Institute of Technology, among others, all were originally schools for "mechanics"—skilled craftsmen and technologists. Schools of law, of business, of dentistry, of social service, of librarianship, still, with rare exceptions, carry on practically no research in the sense in which the term "research" is used by a good graduate faculty in the humanities and sciences.

The trend in all professional schools, however, is strongly away from exclusive reliance on a how-to-do-it approach, and toward the introduction into the curriculum of the basic sciences underlying the practice of the profession. Correspondingly there is a pronounced trend in professional schools towards research in these basic disciplines. With the introduction of basic research, methods of organization become appropriate that are different from those that were appropriate when the school was engaged solely in professional assignments on behalf of clients. Yet arrangements that may be effective for the new basic research programs may not be appropriate in the professional aspects of the school's work.

While the applied departments and professional schools have become more involved in basic research, the basic research departments have become more involved in undertakings for outside clients. Every important department of mathematics, physics, chemistry, biology, and psychology—and almost every unimportant one, too—now receives grants of a year's duration, or occasionally several years', from businesses, government agencies, or foundations. A few of these grants, including some from the government, are so broad as to be tantamount to general support of a department, unrestricted except for periodic review and consideration of renewal (not a negligible restriction!). Most grants, however, are for fairly definite purposes—for doctoral training in rather narrow specialties, for research on well-defined problems, for specific equipment. In accepting these grants the university assumes an obligation to the client which requires that responsibility, hence authority, be assigned to some one person for seeing that the obligations are fulfilled. Thus, outside support and its obligations produce subtle but steady pressures away from the complete, laissez-faire decentralization under which universities have functioned best.

Another pressure in the same direction results from the great mobility that characterizes faculties, particularly the staffs of programs supported from outside. In an important sense a university

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is its faculty, for they are the people in whose hands the ultimate power lies under a system of atomistic decentralization. But the ultimate power of an enduring institution cannot lie in a group that is here today, gone tomorrow. To the extent that a university is simply a resting place for birds of passage, who migrate with the climate of research interests and opportunities, it is forced to locate important decisions and controls more centrally than would otherwise be desirable.

Still another force tending to undermine the traditional decentralization that we refer to as academic freedom arises because today individual professors themselves participate in a wide variety of activities outside the university. Much of a modern professor's time is spent with people in business, professional associations, foundations, publishing houses, and "projects" of all kinds—not to mention public affairs and just plain politics. Indeed, the very fact that controlling influences over universities are passing to the center of the university has generated a growing interest on the part of faculties in the governance of universities—in faculty senates, in departmental voting on appointments and curricula, and in other collective or "democratic" apparatus. Similarly, the fact that, as I shall note later, universities are increasingly subject to control by outside sources of funds has generated a great interest by universities in placing their members on the boards, staffs, and advisory committees of agencies with funds to grant. Such outside commitments of the faculty raise questions of conflict of interest that undermine the basis for delegating the ultimate authority in a university to the faculty. The case for decentralization—for academic freedom, that is—rests heavily on the assumption that the faculty are governed by no interests other than their consciences: that "They are not out to make money or win political office, so that what they report should be disinterested."[5]

One more force threatening the traditional decentralization of universities is the rise of interdisciplinary work. In universities it is more nearly true than in any other institutions of modern life that evaluations of experts are made by other experts on the sole criterion of expertness. Other criteria do, of course, play some role: ability to teach, for example; a personality not so disruptive that a man's output is offset by his negative effects on the output of his colleagues; or abilities in obtaining and managing funds sufficient to outweigh deficiencies in expertness. By and large, however, the statement is true, provided appointments and promotions are based on the

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judgment of faculty members who are indeed experts in the same field as the candidate.

The importance of this consideration makes it unwise to combine fields that are essentially different in a single department, as is often done with mathematics and statistics, economics and business, or anthropology and sociology. With the rise of deliberately interdisciplinary units—often a desirable development—the problem is accentuated. (Such units often result from focusing on a problem—urban studies, for example—rather than on a field of knowledge, and this in turn often results from trying to provide professional services to outside clients.) An interdisciplinary unit, if it encompasses several disciplines that are truly distinct, is ordinarily not competent to pass on its own appointments and promotions. If it is allowed to do so, in accordance with traditional decentralized procedures, it almost invariably declines in quality with the passage of time and the disappearance of the original enthusiasts who happened to represent an unusual combination of abilities. If the interdisciplinary unit is not allowed to make its own decisions, there occurs a further passing of authority toward the center. In addition there seems to be some tendency for interdisciplinary units to report higher in the administrative hierarchy than would otherwise be the case—to the provost where a comparable intradisciplinary unit would report to a dean, or to a dean instead of to a department chairman—thus moving authority toward the center.

(Interdisciplinary units should, of course, be distinguished from new disciplines. The field of statistics, to take an example with which I am personally familiar, has been organized into separate departments in most leading universities within the past fifteen years. This has meant bringing together people who formerly would have been in departments of mathematics, astronomy, economics, sociology, psychology, engineering, education, business, public health, and a dozen more. They are, however, people sharing a common discipline, including all the paraphernalia of national and international professional associations, technical journals, abstracting services, and so forth. Thus, they can be measured against the standards of their own field, by their publications and in other ways, and in fact the various departments in which they were formerly housed were usually not competent to evaluate them.)

The centripetal forces that are centralizing authority within the university are matched by centrifugal forces that are diffusing to

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outsiders the authority that formerly lay within the university. Universities are gradually losing control over the activities carried on within their walls. The role of the university in research is in danger of becoming something like that of hotel keeper for transient scholars and projects. Hotels provide rooms, staffs, and supporting services for travelers, conferences, parties, and banquets. What goes on in a hotel's rooms depends on outsiders—on the arrival of guests, conference organizers, and hosts inquiring about the availability of services. A hotel's only control over the quality of the activities carried on under its roof comes from its right to turn away business that is disreputable, shoddy, or immoral, and from its right to solicit business from those who control desirable activities.

Similarly, in today's university many of the staff are a little like transient roomers, in that they are connected solely with some project of research or application, transfer from one institution to another as their interests or opportunities change, and never develop the same attachment to the university as do the regular faculty, who, in a very real sense, are not just attached to the university—they *are* the university. Corresponding to the parties, conferences, conventions, and banquets of the hotel are the research projects and developmental grants decided upon by outside foundations, research institutes, government agencies, or corporations, who seek the home that will best suit their own needs. Even at the universities with the largest endowments, outside sources provide much of the support for research, scholarship, and graduate programs, since total expenditures on these advanced studies, by private and government agencies, now dwarf the amounts the universities can command for them from funds that they control.

As universities have lost some of the control over their own research and advanced teaching programs, they have lost correspondingly some of their individuality, and have tended to become more alike. As the fancy of some foundation is captured by a new development, the foundation pays for introducing the new development in many institutions. Still others, moving in the direction from which the winds seem to bring the scents of dollars, follow suit. When a government institute distributes funds for a certain type of purpose, it keeps an eye on the distribution of Congressional power and interest, and it is often advised by scientists who have their own systems of power and interest. Thus, the individuality of universities is being submerged by forces not unlike those that have made television into a "mass taste-land." This is

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happening to universities just when a similar transformation is taking place in individuals—when there are increasing pressures for accepting socially-determined values, for gradually subordinating the individual to the group and the group to the nation, and for making the nation coterminous with society. The change has crept up on universities almost unnoticed. It will in all probability continue to grow for some decades—indeed, at an accelerating pace.

Whether these centrifugal forces are dangerous depends largely on the degree to which the outsiders are themselves centralized or atomistic. If the outsiders are atomistic—that is, small and diverse—a university need not be dominated by outside sources of funds; for the possibility of shopping around for supporters whose interests are consilient with its own enables it to select its own course. With the role of the Federal government ever growing, sources of outside support are increasingly centralized. While the several Federal agencies have been reasonably independent so far, there have been steady pressures from Congress, the Bureau of the Budget, and the Comptroller General for uniformity. Similarly, some of the private foundations are too big for healthy diversity.

The forces that I have labelled centripetal tend to gather up the powers that in universities have traditionally been dispersed among individual faculty members and to concentrate them somewhat more than previously in the hands of administrators. The forces that I have labelled centrifugal then tend to disperse these powers outside the university. There are, as we saw in considering the circumstances in which centralization and decentralization are appropriate, profound and powerful reasons why universities have been, and should be, largely autonomous and organized along lines of laissez-faire decentralization. Yet the assumption by universities of responsibilities for performing prescribed tasks that are important to society inevitably works to reduce autonomy and decentralization. This raises the question whether these prescribed tasks, important though they may be, should be accepted by universities. The answer, to anticipate the argument, is that some should and some should not, and that the test should be the extent to which the tasks contribute to the central educational purposes of a university.

The heart of all the frantic, high-pressure, hurly-burly activity of today's professor is still the education of the young. This it is that ties all the activity together, gives it purpose, and provides a common focus to all the diverse activities of a university. Not only is teaching the central focus of all the activities of a university, but

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it is becoming almost the only activity that is not duplicated outside the universities. There are great independent libraries, such as the Library of Congress in Washington, the Morgan Library in New York, the Newberry Library in Chicago, and the Huntington Library in San Marino, which provide not only library resources but support for scholars. There are great research institutes, such as the Rockefeller in New York, the Brookings in Washington, and the Salk in La Jolla, that support not only research but doctoral study. There are havens, apart from the universities, for advanced scholars and scientists, such as the Institute for Advanced Study at Princeton and the Center for Advanced Study in the Behavioral Sciences in Palo Alto. There are other great research institutes that support post-doctoral study, for example, the National Bureau of Economic Research in New York or the national physical laboratories of Brookhaven, Oak Ridge, Argonne, Los Alamos, and Livermore. Whereas once the advance of knowledge in most fields depended on universities and on universities alone, now teaching is the only university activity that depends wholly on universities.

Teaching cannot be done effectively at a high level of quality except in conjunction with many other intellectual activities, especially research. The conflict between teaching and research which figures prominently in contemporary lay discussion of universities is mostly an illusion. Teaching and research are complementary, for the good teacher "must keep the machinery of his own mind hot with action if he would excite activity in the minds of his students";[6] so all leading universities, and most others, allow their faculty time for both teaching and research. Education of high quality can scarcely exist except as a joint activity with research, scholarship, advanced training, and applications of knowledge.

Hence the fact that education is almost the only activity that is unique to universities by no means implies that it should be the only activity, nor even that other activities are not equally important. But by remembering that a university has a special relation to teaching that it does not have to its other activities, we may occasionally help to clarify difficult questions about the proper scope of the university. Should a university include an institute of meteorology, or an institute for research on public opinion? A school of law, or a school of journalism, or a school of diplomacy, or a school of social work? Ought it to offer a doctoral program in operations research, or in political science, or in sociology, or in speleology, or in statistics? Such questions have innumerable rami-

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fications, and to answer them will always be difficult at best. One test that we ought to apply is how contemplated innovations would relate to our educational programs and to other programs which relate directly to our educational programs. No proposal reasonable enough to be raised seriously is likely to be mortally wounded by such a test, but some may be slowed down enough to increase the orderliness of our growth.

To summarize: At the heart of the contemporary university is the traditional university, characterized by an extreme degree of individualism and decentralization, seeking knowledge for knowledge's sake, and seeking it in lieu of material goods and services rather than as a means of attaining them—indeed, seeking knowledge not even for its own sake so much as for the sake of the search. Superimposed on this traditional university are many socially-important functions which have burgeoned recently and could not have been provided for satisfactorily had not universities assumed responsibility for them. Organizational arrangements required to meet these responsibilities involve more concentration of authority within the university, and more delegation of authority to outsiders, than is compatible with the central, unique, and enduring purposes of a university. Other institutions now exist which are capable of handling most, perhaps all, of these responsibilities. That an activity is worth doing and involves scientists and science, or scholars and scholarship, is not sufficient grounds for pursuing it in a university. It is not even sufficient ground for concluding that the activity is not a menace to the university which accommodates it. Universities should, therefore, retain such responsibilities, or accept new ones, only if they are compatible with the decentralized decision-making that is essential to the basic purposes of universities, or if they contribute substantially to activities that are essential to these basic purposes.

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FREDERIC HEIMBERGER

The State Universities

THE NEAR future will bring changes of major consequence to all segments of what is loosely called "higher education" in America. No single part—whether it be a technical school, a community college, or a true university—will escape the effects of a vast increase in what is factually known, or the urgent demands of a social order that is being based more and more upon the uses of the mind. Few if any of the separate parts which comprise the collective whole will remain untouched by swiftly growing numbers in the college-age population. But it is likely that among all of the many and widely varied agencies for higher education that now exist, the state universities will change the most.

Lest there be confusion now or later, let it be made clear that the word "university" is here being given the descriptive meaning which has long been accepted by educators. It is not being used as an all-inclusive term describing a statewide system of which the university proper is only a single, even though perhaps dominant, part. Neither is it being applied carelessly to almost any school that gains the title of university by nothing more than the fiat of its governing body. Furthermore, it is the writer's strong opinion that it is very important just now to hold fast to the old and highly respected concept of a true university. It still has value and it is worth preserving, particularly at a time when huge and all-inclusive educational systems are being planned and developed. There is something really distinctive about a university, and the meaning and identification of that special quality should not be lost in a welter of newly created or greatly expanded agencies for post-secondary education or training.

The effects of change in our state universities will not be

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limited to these institutions themselves. The forms and directions they take will have a powerful influence, for good or ill, upon all of the academic community. With wise and imaginative guidance, the state universities of tomorrow can attain new levels of excellence and contribute as never before to higher education in America. But there is also the frightening possibility that, lacking clear vision and intelligent leadership in the use of their size and power, they could become a blight upon the land—one perhaps not readily recognized but one still withering in its effects. The outcome ten years hence will depend upon certain major and even a good many seemingly minor choices that must be made in the time between.

Rapid growth in the numbers of students to be served is assured by the flooding tide of young people now moving through our elementary and secondary schools with no sign of an early ebb. Furthermore, the strength of that flow is being increased yearly by the rising percentage of high school graduates who either seek added opportunities for themselves or who are compelled by economic necessity to continue in some form of post-secondary education or training. The period of preparation for adult life and productive effort is being steadily lengthened to meet the new requirements of a swiftly changing, highly complex, and largely urban society. We are now at a time somewhat like that of the early twenties, when the need for more years of learning brought a great upsurge in high school enrollments. Today we see the beginnings of a fresh and powerful surge, this time breaking beyond the high school and calling for new or vastly expanded opportunities for almost countless thousands of young people. Due to increased emphasis upon graduate and professional studies, we also see a lengthening of the time devoted to formal education by many who are not so young.

It is true that much of what is newly needed is not in keeping with the nature and purposes of a university. But the needs are here, and without too much concern for the feelings of academicians the public will demand that they be met in one way or another. With a longer span of years, adequate opportunities might be provided in good time through the orderly expansion of existing colleges and universities, the building of new ones, and the development of a wider variety of limited-purpose schools. But time will not wait, and it is highly probable that our state universities will be held responsible for seeing that the major share

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of the job is done, either directly through sharply increased enrollments and a wide diversification of their teaching programs, or indirectly through enlarged or newly created ancillary schools. Some part of the need for added opportunities will be met, of course, by our private institutions. But the costs will be so great that in the absence of the kind of general and massive federal assistance which probably will not come in time to meet the immediate need, by far the greater share of responsibility must be assumed by the states and their agencies, old or new.

Many who are rightfully proud of the stature which their state universities have attained through years of effort will want no part of this new, distracting, and possibly debilitating responsibility. Some may be of the opinion that it would be better to create entirely new agencies to develop and operate separate systems of special-purpose colleges, schools, or institutes. Others may favor an extension of the public schools to cover at least one or two years of post-secondary work. There is little likelihood, however, that our existing state universities will be able to avoid the issue. They are generally looked upon as the principal public agencies for higher education. They also have a visible and impressive record of accomplishment in a wide variety of tasks. In fact, there is an almost frightening faith in their ability to do just about anything—and do it reasonably well. On the other hand, and perhaps for no valid reason, there is relatively little confidence in the ability of the public schools to go beyond the twelfth year in anything more than purely vocational training. Thus it appears that the solution to this dilemma must be sought and found by the state universities, either by doing the job themselves or by taking the lead in seeing that it is done—and done well—by others.

This whole question of what the state universities can do to meet mounting enrollments and rapidly changing needs will be easily answered by at least a few—chiefly administrators of the promoter-manager type rather than experienced educators. Having no deep understanding of the true nature of a university, they will simply accept the emerging situation as a welcome opportunity to increase the operational size, the diversity, and the public appeal of their own institutions. If there is a need for almost any form of post-secondary work they will offer to meet it through the "university" rather than see a chance for "growth" and power slip away to some upstart competitor. Hopefully, very few will be so lacking in vision and so personally ambitious. But there will probably be

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some, and these will surely promote at least a few sprawling monsters of mediocrity mistakenly called "universities."

It is often said by athletic coaches that a team rarely stays the same after mid-season. It gets either much better or much worse. Our state universities are now at mid-season and it remains to be seen which way they will go. The needs and opportunities of the next ten years will be used by some to good advantage, to gain new and much higher levels of academic excellence and effectiveness. In the process of helping to build a statewide pyramid of post-secondary training and education—one broad of base and high of apex—these institutions will seek first to define the forms and functions of a true university, and then try to find their proper places in the total structure. This will call for hard and sometimes unpopular decisions as to what to do and—of equal importance—what to leave for others to do. The state universities headed for greatness will be wise enough to assist in developing and giving direction to other institutions designed to meet other valid but different needs, thus freeing themselves to strive for education at its highest levels. Failing to take this longer view and to be more selective in their choices, some will no doubt attempt to be all things to all people and as a consequence end up as huge and physically impressive but still second-rate institutions ten years hence.

How well or poorly our state universities come through this period of rapid expansion and realignment must be a matter of great concern to the entire nation. To an increasing degree we shall all be dependent upon their quality and effectiveness as major sources of new knowledge, new ideas, and keenly whetted minds. While they may appear to be only local institutions, the actual fact is that collectively our state universities constitute a national resource of critical importance. The new forms and functions of these public institutions will also have very strong effects upon our many and richly diverse private colleges and universities. One effect will be felt through the uses made of their economic power to compete. It may be assumed that the state universities will not be expected to make bricks without straw—that when the pressures for providing expanded and improved programs of teaching and research are really felt by parents, businessmen, and other taxpayers, greatly increased public funds will be made available. This is what has actually happened as communities have faced the needs of their elementary and secondary schools, and

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there is little reason to think that the experience will not be repeated at a higher level.

This means that lacking the kind of immediate and very substantial federal or philanthropic assistance which seems improbable today, even the strongest of our private institutions may find themselves at an economic disadvantage in seeking to attract and hold those exceptionally able scholars and teachers who often make the difference between excellence and mediocrity. It will not be a question of salaries alone. The provision of immensely expensive laboratories, guaranteed research assistance, and other supporting elements is essential to the recruitment and retention of highly qualified faculty people in many important areas today. It is true that federal grants and contracts now help to provide support for certain fields of study in a relatively small number of our stronger private institutions. But there are literally hundreds of colleges and universities having little prospect for receiving really large-scale governmental assistance, at least in the near future. Moreover, it is not realistic to expect that private gifts will increase rapidly enough to keep pace.

The economic pulling power of the state universities may also have an effect upon the movement of students, particularly those at the graduate level. Relatively large numbers, many of whom might prefer to go elsewhere, will be attracted to these huge public institutions by opportunities for part-time employment, either in undergraduate instruction or as research assistants. In the latter case, the enticements will be quite strong in the applied fields which are now attracting increased attention and substantial support because of the current emphasis upon university research as a means to local or regional economic growth.

As a final example of the many ways in which a relative increase in the size and strength of the state universities may affect all of higher education, it is not fanciful to suggest that, through added numbers, their faculty members may gain greater power in guiding the affairs of professional societies and other associations that have much to do with determining the nature and quality of the entire academic enterprise. Thus our burgeoning state universities cannot be set apart, screened off by a curtain of disinterest, or perhaps even regarded with smiling condescension as peculiar but not too important American phenomena. The decisions they make and the paths they take must be of deep concern to all who cherish higher education at its best.

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II

What, then, are some of the more important issues that will probably confront our state universities within the next few years? Who will decide them? Will these universities merely drift with the prevailing winds of public pressure? Will their faculties and administrations leave it to others who are far less able and experienced to decide their future? Or will they themselves take the lead in developing new and greatly improved centers and systems for learning and teaching? The first and probably most critical decision of all in this new era will be that of function or purpose. Are these state institutions to be true universities, ready to encompass any field of disciplined study and having no predetermined limits to either the range or the intensity of their work? Or are they constrained by their very nature to pursue only restricted interests—allowed to go all the way in some fields but forced to stop short of full accomplishment in others? Does the fact that they are state institutions, supported in large part by all who pay taxes, mean that they dare not make discriminating choices of either their educational programs or their student clienteles?

There was a time when, due principally to the early effects of the land-grant idea, a clear difference could be seen between most of our state universities and the more mature private ones. Heavy emphasis upon the most visible and practical problem of that time, full development and immediate use of the land and its riches, gave a strong agricultural and vocational cast to their interests and efforts. More than most of us realize today, the struggle to break beyond that limited concept has been a long and difficult one. It has claimed the time and attention of many far-sighted and courageous educational statesmen. In some cases, of course, that struggle continues even today, and what was undoubtedly necessary and valid in earlier years still has a perhaps hidden but still very real restrictive effect. But our better state universities are now moving far beyond any concept of restricted mission or purpose. They are claiming their right to range far and wide in subject matter and to seek the highest degrees of excellence in fields of their own choosing. A good many of them have already chosen goals and developed programs of teaching and research that are unsurpassed by those of even the most distinguished private schools. This does not deny the fact that certain special

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services, usually related to a particular vocation and often required by law, may still be found on the same campus with programs of high university quality in such fields as the humanities or the basic sciences. But these limited services are clearly recognized for what they are—added functions rather than programs growing out of restricted basic purposes.

The move toward higher quality and true university status is being hastened and facilitated by the development of more and more statewide plans and provisions for post-secondary education or training. Now, at last, we are beginning to see a full recognition of the fact that there are differing needs and differing clienteles, and that all must be served with dignity and effectiveness. This is leading toward a wider range of choices for the high school graduate, toward programs and agencies specifically designed and distinctly labeled for what they really are. It offers hope that our principal state institutions may be able to concern themselves as never before with the real business of education at the university level. It may be difficult, of course, to persuade legislators and others who control the purse strings, and thus strongly influence policy, that clear differences among needs and clienteles exist and must be taken into account. Many will probably continue to argue that "good old State" ought to be able to offer a program in mortuary science along with one in nuclear physics, or train typists as well as political theorists. And a good many university people will be tempted to agree rather than run the risk of losing much-needed appropriations. A few top administrators may even oppose the establishment or expansion of limited-purpose schools or institutes, fearing them as competitors for public funds. Those who take this latter position will do their universities no good in the long run. They would be far wiser to assist in finding other ways to meet those needs which cannot be properly met through the offerings of a major university. Then, and then only, can they insist that there really is a difference between a trade school and a university, and that each has its rightful place in a total system. Then, and then only, will they be able to win wide understanding and approval of selective, rather than restrictive, policies on admissions to public institutions.

It is true that there are still deep differences of opinion on questions of educational goals and standards within most of our state universities. Almost every campus has at least some members of the faculty or administration who vigorously oppose any tendency

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to emulate the Ivy League or, as they sometimes say, "to go high hat." Such fears of a possible violation of purpose and trust are often found among those who make much of "the land-grant idea" or the concept of "the people's university," without thinking too deeply about the true meaning of these oft-repeated words, which have been worked to death and which have now come perilously close to being mere clichés. Their error lies in assuming that these catch phrases can rightly be used to set limits to quality and standards of excellence, rather than to offer a constant challenge to make the best available to all. Among the many newly emerging provisions for post-secondary training or education, "the people" of a state are surely entitled to at least one public university that dares to match strides wherever it can with the best in America.

Holding to false or outdated notions about "the land-grant idea" can also have another somewhat different but still stultifying effect upon our state universities. One of the critical problems now facing these institutions is that of realigning their interests and efforts in order to meet the newer needs and broader opportunities of a swiftly changing social and economic order. Our society is no longer a predominantly local and agrarian one—or even the relatively simple one of the "mechanic arts," as they were known in earlier years. Yet the specific command of the Morrill Act, given more than a century ago, to teach agriculture and the mechanic arts still weighs heavily in the scales of what is most important, even in many schools that do not trace their origins to that particular bit of national legislation. As so often happens, the predominant interests and needs of one era have been fixed and institutionalized to such a degree that they strongly affect the next. It is difficult even today to progress beyond the notion that agriculture, engineering, and applied science have special importance and must therefore be given favored treatment. And since so many of our state universities either began as or were made into land-grant colleges, the effect has been widely spread.

Disproportionate representation in legislative bodies has contributed heavily to disproportionate interest in teaching and research related to agriculture. With one or even both houses of the legislature dominated by representatives from rural areas, leaders of our state universities have been tempted—sometimes virtually compelled—to give special attention to the needs and desires of the agricultural community, no matter how pressing other and newer

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problems may be. But the recent decision of the United States Supreme Court that both houses of a state legislature must be truly representative promises an early end to this situation. It will then be up to those who guide our state universities, freed from this dead hand of the past, to move boldly and quickly to achieve a balanced effort that is based upon things as they are today, not as they were yesterday.

The Association of Land-Grant Colleges and Universities, recently expanded to include all state universities, has long been a kind of focal point for strongly agricultural influences. One can only hope that before too long this powerful body will achieve a better balance of interests and control, thus catching up with the times and justifying its continued existence as the principal national association of state universities. This will not happen, however, unless the more alert and forward-looking educators in these institutions take increased interest and make their potentially strong influence felt, rather than abdicating to those habitual convention-goers who are often found to be among the less progressive and imaginative elements of the academic community. Like their national association, many of the individual state universities need to consider a basic realignment or a major extension of their educational interests and efforts. It is to their everlasting credit that in earlier years they led vigorously and effectively in developing programs of research and instruction suited admirably to the times. But times have changed and the areas needing most intensive study are no longer what they once were. We are now in a period of urbanization, of automated production, of radical reorganization of the working force, of shortened time and distance the world over, and of a host of other almost revolutionary developments that ought to be of great interest to our scholars and students. It is questionable, however, whether some of our state universities are as deeply concerned as they ought to be about these new and vitally important consequences of social and technological change.

This is not to propose that anything less be done in those programs of research and instruction which began in an earlier day and which still have meaning and importance. But it is to suggest a careful reappraisal and, if need be, a redeployment of resources better suited to the present and the future than to the past. For example, the problem of how to gain the advantages of automated production without doing unconscionable harm to mil-

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lions of workers cries for attention and intensive effort on the part of our universities, particularly those which are constituted as public agencies, and likewise the many and critical problems of our great and still growing cities—problems of housing, public health, education, race relations, transportation, local government, and many others. Perhaps the greatest challenge of all in this day of crass materialism and self-seeking cynicism is that of finding ways to develop a new sense of personal and social values—of ethics, beauty, and humanity. Truly our changing society is producing an abundance of new needs and tasks, but at least some of our state universities are doing precious little about them. In one perhaps extreme case of which the writer has knowledge, the principal university of a major manufacturing state spends more each year on 4H clubs than it does for its entire program of research and teaching for literally millions of industrial workers and their highly important organizations. It is surely time to give fuller meaning to the concept of the people's university. Happily, quite a few of our better state universities are now beginning to cast off excessive and restrictive commitments to the past. Hopefully, others will soon follow.

There is danger, of course, in reacting too hastily and uncritically to demands brought about by changes in the social and economic order. At this moment the strongly competitive drive for new industries and products as means to local economic growth carries with it a very real threat that powerful persons and their associations may insist that the first and foremost responsibility of the state university is to serve prevailing economic needs and desires. Clear signs of this danger can be seen in the sudden burst of enthusiasm for higher learning now being displayed by many leaders in business, industry, and politics who had previously been much more concerned about holding down taxes than about providing adequate financial support for their state universities. Overnight it seems, gold has been discovered on the campus and there is a mad rush to turn it into usable profits. Through chambers of commerce, manufacturers' associations, and clever politicians not formerly noted for their generosity to state-assisted higher education, special appropriations and even bond issues for "research and development" purposes are now being sponsored and "sold" to the public largely in terms of promised economic gains to the local community.

This sudden and even startling discovery of the values of

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higher education is indeed flattering, and no one is about to reject the added support which it is bringing to our state universities. But it is also a cause for concern. Will it lead to harmful distortions, diverting resources to those fields which produce a quick pay-off in dollars and cents? Will it create a new elite among faculties, giving special favor and dominant power to the scholars and teachers whose efforts promise to bring direct and tangible economic gains? What will it do to those whose lives are devoted to learning in the humanities, in the relationships of man to man, and even in pure science? Will it threaten freedom to investigate where the search might lead to conclusions that seem dangerous to powerful forces whose primary interest is in personal gain through the prevailing system? Will it cloud the true and eternal purpose of any university worthy of the name: the ceaseless search for truth wherever the interests, the curiosity, or the needs of men may lead? Comments much the same might be made about the effects of contract research financed in our state universities by agencies of the federal government, chiefly the Department of Defense. There is reason to worry lest the influence of millions of otherwise unavailable dollars may cause faculties to dance to tunes called by others whose special interests lie outside the university. The emphasis upon contract research and the amounts of money that can be pulled out of Washington has now reached the dangerous point where many who ought to know better are using these dollar volume figures as measures of comparative quality and greatness among state universities. All too little attention is being paid to what this money may do to the long-range goals of a university, and to the fruitfulness or sterility of its instructional programs as able scholars become so preoccupied with contract research that what was once the absorbing job of teaching their successors comes out second best.

The financial needs of today and tomorrow are so great that the leaders of our state universities have no choice but to seek support from every respectable source. But if they are wise and farsighted they will be constantly on guard against the danger that their institutions might be made captive by such support, thus losing their identity and freedom as true universities. This is not to suggest that either economic growth or national security is an unworthy goal, and that money provided for these purposes is tainted. But it is to remind those who speak for and guide our state institutions that they bear a heavy responsibility for insisting upon

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freedom and balance among all of the many and diverse values of learning, and upon full regard for that special quality of a university which requires that its goals must always be set a bit beyond the immediate, the practical, and the presently popular.

It is not within the purposes of this paper to go into a detailed exploration of the immense problem of financing our state universities. Furthermore, the writer is not competent to do so. But attention must be given to certain situations where financial problems and the methods proposed for their solution may strongly affect matters of educational policy or practice. Reference to one situation of this kind has just been made in connection with contract research, where dollars from the national government already exert a powerful influence. Moreover, it now seems certain that we are starting down the road of steadily increasing federal assistance. In spite of loud cries of alarm about the dangers of domination by Washington, national subsidies in one form or another will not only be accepted, they will be sought for and even demanded. There is nothing really new about this situation, since what is now happening is simply a vast expansion, in both volume and purposes, of a practice that has existed for a long time. Hopefully experience, even on a relatively minor scale, has helped to prepare most of our state universities to accept and use money from Washington to good advantage and with a minimum of danger.

Even with the greatly increased federal assistance which is likely to come in the near future, costs at the local level will still be very high. This means that tax-conscious citizens and legislators will almost certainly be looking for every possible way to ease or shift the heavy burden. One such way, laying more and more of the cost upon the student, is very attractive and is already being used so widely as to be cause for deep concern. In earlier years it was taken almost for granted that the provision of educational opportunities in our state universities was largely a social obligation, or investment if you will. As a matter of wise public policy, taxes were laid upon all in order to meet the major portion of the cost, leaving it to the individual student to pay only a minor and by no means prohibitive share. But we are now witnessing a broad retreat from what was once almost a basic principle in state-assisted higher education. There is real danger that a long-established and very important difference between public and private universities will be lost as legislators and budget officers, faced with the distasteful task of raising taxes, take the easy way out. This truly fundamental change attracts little attention and

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provokes few cries of protest. Fee increases come steadily but in relatively small amounts. Furthermore, they give the appearance of being only reasonable and fair, since the student who is afforded the opportunities of higher education is likely to profit personally. Nevertheless, this recent trend really marks an alarming departure from past principles and practices. It threatens the concept of public responsibility for equal opportunities in learning, and if it is allowed to continue unchecked it will ultimately deprive society of the immense benefits to be gained by making the most of intelligent and purposeful young people, no matter what their early economic levels may be.

Almost equally dangerous to the nature and quality of our state universities is the even swifter rise in nonresident fees. It is easy to understand the reluctance of the taxpayers of one state to subsidize the educations of young people from others. It seems only right to ask the outsider or his family to pay something like the full cost. But this seemingly sound and reasonable practice is penny wise and pound foolish in terms of education at its best. It is leading directly toward insularity and provincialism through the erection of what amount to prohibitive barriers against the free flow of learning and broadened intellectual experiences. Long ago this nation accepted and wrote into law the principle that all parts profit most when channels for interstate trade in material things are kept wide open. It rejected all thought that even what seem to be purely local interests can be permanently advanced by internal economic barriers. Our states may think that they are now saving money and serving their local interests by making it increasingly difficult for nonresidents to enroll in their subsidized universities. But what they are really doing is lowering the quality and limiting the breadth of the educational opportunities which they seek to provide for their own young people. Moreover, it goes almost without saying that any trend toward insularity and provincialism in higher education is unquestionably harmful to the national interest. In fact, it is not beyond possibility that questions might be raised in the future about the propriety of giving large federal subsidies, drawn from the taxpayers of the entire nation, to state universities which give a special and very substantial advantage to local residents.

There may be little or nothing that the state universities themselves can do to halt or reverse the present trend toward higher fees and almost prohibitive interstate barriers. But, of all people, their leaders and spokesmen must surely realize the danger to both the

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nature and quality of public higher education and do their level best to see that it is recognized and averted. Faculty members must also bear their share of this responsibility. All too often they remain silent and thus give their tacit approval to higher and higher student fees when legislative appropriations fail to meet pressing needs for salary improvements. The least that they can do is to be aware of what this easy way out is doing to the nature of their universities, and then speak up for all to hear.

Interestingly enough, there is a strong trend toward cooperation, often interstate in scope, among institutions of higher learning at the very moment that rising nonresident fees are reducing the mobility of students in our state universities. These cooperative ventures are taking two broad forms. The first is based upon concerted legal action by two or more states, while the second grows out of purely voluntary association on the part of universities and their faculties. Interstate compacts or agreements, entered into by the governments concerned, are being used principally to achieve economies and improved services through an apportionment of efforts, often accompanied by contractual arrangements calling for the home state to pay another for the costs of educating students in certain fields. Arrangements of this kind are proving to be very useful in preventing wasteful duplication and perhaps inferior education in those essential but costly programs which have relatively small enrollments. They are particularly useful in the professional fields and in highly specialized areas of graduate work. The second broad form of cooperation, that of purely voluntary association, has been in existence for a long time. But its use in the past was usually limited to the smaller schools which lacked the size, economic resources, and student enrollments which are necessary to achieve strength and quality over a broad range of educational endeavors. Such institutions have found much to be gained by sharing efforts in a common cause.

Voluntary association is now being given an entirely new dimension by some of our large and powerful universities. These are institutions of great size and diversity, of the kind which might seem to have the least need of all for seeking cooperative relationships with others. But their purpose is something far beyond simply gaining economies or acceptable levels of quality as they are recognized today. It is instead to exceed the best that now exists, even in our foremost institutions, achieving hitherto almost undreamed-of power and excellence in higher education. Their method is to bring together, to encourage, and to assist faculty members who are inter-

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ested in using the combined resources of several universities to build programs of research or teaching that now lie beyond the reach of a single university in terms of highly competent people, special laboratories, costly instruments, or library collections which lose their value when spread too widely. It is also to reach agreements as to who will do what—and do it better than ever before—in certain highly specialized or so-called "exotic" fields where the resources of scholarship are sharply limited and cannot be scattered without a severe loss of quality and effectiveness.

The Committee on Institutional Cooperation (CIC), made up of the Big Ten universities and the University of Chicago, is a prime example of this type of voluntary association. Established only seven years ago with original support from the Carnegie Corporation, it has become an impressive example of what can be accomplished when even very large and seemingly self-sufficient universities, private as well as public, join forces for the advancement of learning. It now has more than a score of important ventures in actual operation, ranging from biometeorology to research in water pollution, from studies in economic growth to a "grand design" for the less familiar but still vitally important foreign languages and literatures. The CIC Summer Institute in Far Eastern Languages, assisted by the Ford Foundation, is but a single example of what can be done through voluntary cooperation among powerful universities. This institute moves from campus to campus, bringing together the best of scholars and students for two months of intensive work of scope and quality beyond what could be provided by any single one of the several members. Perhaps the most interesting development of all has been the recent establishment of the CIC Traveling Scholar Program. With the permission of the related graduate deans and faculty advisers in each case, this program allows a graduate student in any one of the member universities to move to any other for two quarters or one semester in order to study with a particular person, to work with instruments that do not exist elsewhere, or to have the benefit of unique library collections. The registration of the traveling scholar remains at his home university, and he pays no extra fees. Thus a way is opened for the individual student to add to his normal program of study the best that is available in several great universities. This plan also makes it possible for each university to select and develop certain specialties which might seem to be extravagant in terms of its own students but which could be fully justified when made available on a sharing basis to those of ten

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others. It remains to be seen whether the state universities and their faculties will make the most of the opportunity to gain unprecedented strength and quality through voluntary cooperation. One of the more attractive features of this approach is the fact that, unlike compacts based upon law, it can easily encompass private as well as public universities and thus bring great advantages to both. It is not idle dreaming to hope that the CIC and other associations of its kind may soon add an entirely new dimension to higher education in America.

The possibility of gaining some of the benefits of large numbers and wide diversity without losing identity or paying the price of monstrous expansion has at least some bearing upon one of the major problems now facing the state universities: the problem of optimum size, the question of when a limit is reached and it is better to create an entirely new institution or expand others. Many educators are now deeply concerned about rapidly increasing enrollments, wondering how long they can go unchecked without serious effects upon students and teachers as individual persons, fearing that they may become only faces in the crowd. They also worry about the mushrooming cloud of administrative offices and required procedures growing out of greater size and complexity and, as they view it, casting a deathly pall over the campus. There can be little doubt that, if kept within reasonable limits, size and diversity offer real and substantial advantages. The large multipurpose university needs and can usually support library resources of considerable breadth and depth; its laboratories are likely to be widely varied and equipped with the kinds of instrumentation which are beyond the reach of most smaller institutions; the special interests and abilities of its faculty members complement each other and provide a rich amalgam of differing experiences and points of view; and the cosmopolitan nature of its student body minimizes the danger of damaging insularity. The problem now facing the state universities is, of course, that of finding the point of diminishing returns, where sheer size becomes a monstrous hindrance rather than a helpful advantage. But as yet no one has come up with an easy and generally acceptable solution. In all probability there is no magic formula, one equally applicable throughout the land. Each state university will have to face this question in terms of its own goals, resources, and relationships with other institutions.

The problem of size and numbers is most acute as it affects great masses of undergraduate students, particularly in their general ed-

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ucation rather than in their major fields of study, where relationships are likely to be more personal and intimate. A great deal of experimentation will be needed in order to determine how best to retain the advantages of size and variety without sacrificing the individuality of the student or of his teachers. In fact, such experimentation is now getting under way in several state universities. One approach is that of holding the student in a smaller branch during the first year or two of his university experience, a period usually devoted largely to general education and to preparation in courses that are basic to later work in a chosen major. It is obvious, however, that this approach sacrifices such advantages as the richness of library and other resources, the heterogeneity of student associations, and to a large degree the daily challenge of a faculty that is widely and actively engaged in research. The latter disadvantage is perhaps the most alarming of all. No matter now strong an effort may be made to hold to equivalent faculty standards, those who teach in "feeder" branches will be set apart by the nature of their teaching duties, by their daily associations, and by the kinds of opportunities which they have for research. By and large they will find it difficult to maintain for themselves and to nurture in their students the intellectual vigor and alertness ordinarily expected in a university setting. Another approach is that of establishing, relatively small colleges for undergraduate instruction clustered on or near the main campus and thus in close contact with the stimulating challenges and diversities of a major university. Coupled with counseling by carefully chosen faculty members, plus curricular requirements that are flexible within broadly established university limits, this approach appears to have real possibilities for retaining the advantages of both largeness and individuality while adjusting to numbers that seem to be inevitable.

It can be expected that in addition to the formal instruction of their regularly enrolled students, most of our state universities will be giving added attention and importance to continuing or extended education. Again, vision and careful planning will make a difference between massive but superficial and enervating engagement in busywork and the accomplishment of educational purposes of the highest order. Properly viewed and selectively chosen programs of continuing education can do much to develop and give real meaning to the concept that for the truly educated person there is no end to study and learning. The brief years of residence then fall into their proper place as an introduction to a lifetime of learning, and "commencement" begins to take on its proper meaning as an invitation to

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the future rather than a farewell to the past. But the attainment of this goal will call for discrimination and courage. Pressures for "short courses" teaching merely the tricks of a trade are very heavy, and a state university may easily fall into the error of courting public favor by transforming its campus into a huge county fair complete with bargains hawked by professors whose time and energies might be far better spent otherwise.

The first criterion for judging what or what not to do in continuing education should be that of the probable effect upon the individual student. Does the program simply pass on to him what others have learned, or is it designed primarily to develop his ability to find his own solutions to his own problems? Does it contribute to his continuing intellectual growth and acuity, or does it merely give him dulling answers to his questions of the moment? The second standard for measuring the worth and appropriateness of a program in continuing education is the use that it makes of faculty time and talents. Does it thoughtlessly waste them, or does it put them to their best possible use in a total approach to higher learning that lasts a lifetime? Probably the most difficult task now facing all American universities is that of building sufficient faculty strength to provide high quality instruction for students in unprecedented numbers. The state universities will be particularly hard pressed because they are less able to control enrollments and thus keep their teaching obligations within the limits of their faculty resources. It seems certain that the supply of adequately prepared scholars will fall far short of the need as measured by present teaching practices. Incoming freshmen will reflect the higher birthrates of seventeen to nineteen years before, while the potential instructors flowing out of graduate schools will come from those born in earlier years when the numbers were much smaller. Thus the most precious resource on any campus will be the talented faculty member. Ways must be found to use him well, to protect him from unbearably heavy teaching loads, to free him as much as possible from routine chores of doubtful value, and to keep him intellectually alive with time and energy enough to read and reflect, to study and travel.

Many self-appointed experts will probably expect to get much more mileage out of every available professor by means of such mechanical aids as TV and teaching machines for programmed instruction. Unfortunately, some university administrators, particularly those with little or no actual experience in the classroom or the laboratory, have helped to build false hopes as to what can be done,

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and done well, through a kind of automated speed-up. The result has often been undue and sometimes blind faculty resistance to even the proper use of what might prove to be valuable teaching aids and methods. This will not do. What is needed is a calm, honest, and open-minded appraisal of the very real possibilities for improved instruction and wider dissemination which may be afforded by at least some of the newer devices and fresh approaches to teaching. There is another approach to the problem of too few competent teachers that is also very much worth careful consideration and full exploration by the state universities. It lies in striking a new balance between the obligation to teach and the obligation to learn, in requiring students to assume greater responsibility for their self-education. On the whole, the state institutions have been more inclined than the private ones to concentrate teaching and learning in the classroom and in the closely supervised laboratory. This practice means a great number of face-to-face contact hours for the teacher, perhaps too many for the most profitable use of his time and for the kind of sound education which will last the student a lifetime. Through sheer necessity our state universities may be forced to demand more of their students, to do less "spoon-feeding," to rely more upon assignments that are carefully designed to develop lasting abilities for personal reading, reflection, and inquiry. Born of the necessity for conserving the time and talents of teachers, this new balance could turn out to be one of the major educational advances made by our state universities within the next decade.

Other aspects of instruction also merit careful consideration and, if need be, radical revision. It is likely that sharp and critical attention will soon be focused on teaching in our state universities. One reason for this will be their enormously increased operating costs and a corresponding public concern about how well and effectively the added dollars are spent. Another will be the extension of the widespread interest which has been centered upon our secondary schools over the past few years. This critical interest is bringing substantial improvement at the high school level, so much that many graduates of the better schools are now complaining openly about the content and quality of teaching on the campus. It is not inconceivable that the blasts of public criticism which have hitherto been directed against teaching in our secondary schools will soon be turned toward the state universities. In all honesty it must be admitted that there are enough wasteful and—what is worse—educationally unsound courses and curricula in most of our state universities to

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provide a field day for the critics, whether they be persons who are sincere in their desire for improvement or merely ambitious headline hunters. It will be up to the faculties concerned to put their academic houses in order if they are to retain their traditional right to control matters of educational policy and practice. This will call for serious concern and vigorous action with regard to such things as cheap and shoddy courses offered for full university credit, needless duplication of efforts, and the growing number of super-specialties that are both wasteful and educationally indefensible. Some faculties may shy away from the distasteful task of housecleaning and renovation, of building strength where weakness now prevails. But they must either be willing to do it themselves or have it forced upon them by outside amateurs, or even by the kinds of professional administrators who are sometimes a bit too sensitive to public criticism for the good of higher education.

This listing of problems and possiblilties, of choices to be made by or for the state universities, could be almost endless. It might well include such things as the difficult task of finding valid criteria for the selection of students; or the critical need for a re-examination of graduate curricula and degrees, particularly the doctorate, which in many cases is neither fish nor fowl, neither a truly research degree nor an openly professional one. Questions might be raised about the proper relationship between teaching and research in any worthwhile approach to higher education. There might be at least some reference to the increasingly important role of serious students and student government as they become more influential and even demanding in academic affairs. But there must be an end somewhere; furthermore, most issues such as those just mentioned need attention by our private universities as well as by the public ones. Let us turn now to a brief consideration of how choices will be made, of who will decide whether our burgeoning state universities will move strongly and confidently toward higher education at its best or, in any more than rare instances, will end up ten years hence as dull monsters of mediocrity.

III

The basic power to decide the future of a state university usually starts with the state legislature. In most cases these institutions were established and are still governed by legal enactments that are subject to change and that may thus be used to affect their structure, purposes, and management. Even when a state university has sep-

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arate constitutional status and seems to be free to govern its own affairs, the legislature still has control over a substantial portion of the public assistance which it must have to survive, and this power of the purse strings can be used very effectively indeed. Thus, like any other agency founded in or dependent upon representative government, no state university can be entirely free from legislative authority. It is subject to public pressures exerted through the representative body, and it cannot afford to take them lightly. This makes it doubly important for those who plan and speak for the university to gain a long and clear view of direction, of purposes, and of methods—and then stand boldly and publicly for what is best in higher education. On the whole, leaders and spokesmen of this kind have had excellent records of bringing their institutions to strength and quality over a period of years. They will be more important than ever during the next few years of rapid change and greatly increased interest in our state universities.

The fear of direct legislative interference in the internal affairs of our state universities is often exaggerated by those who pay too much attention to frequent but usually short-lived flurries of excitement. It is true that scarcely a year goes by without one or two investigations or proposals for restrictive legislation. These attract wide publicity and the result may easily be a mistaken impression that legislatures are constantly meddling and thus making it impossible for the state universities to guide and manage their affairs in a highly professional way. Actually the situation is not nearly so serious as many may think. With rare exceptions it certainly is not beyond the control of wise and courageous educational leaders who know what their universities must be about and who are willing and able to rally powerful and intelligent opinion on their side. It may be assumed that such leadership will be equally effective as our state universities now re-examine their positions and search for new directions. There is at this moment, however, one threat of legislative intervention that is truly alarming—the threat of the proposed or actual enactment of laws placing special restrictions upon the freedom of scholars and students in the state universities to hear and consider opinions and exhortations that strongly organized pressure groups may regard as harmful to young minds, thus in effect barring from the campus expressions of views that are perfectly legal elsewhere. This danger, striking at the very heart of any true university, is now being countered boldly and publicly by our more enlightened and courageous presidents and governing boards. Somewhat paradoxi-

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cally, the public universities may be saved from this peril, if need be, by the very fact that they are agencies of the state and thus subject to the Constitution of the United States and its amendments. Recent trends in judicial decisions suggest that there is at least a possibility that the federal courts, using the First and Fourteenth amendments, may have the last word to say about freedom of expression in state universities. It is intriguing even to imagine that there may come a day when the assurance of freedom will be stronger and more complete in the public universities than it is in the private ones.

In many states a relatively recent development has now inserted a kind of super-board or council into the line of control between the legislature and the governing boards of the separate public colleges and universities. These newer agencies are usually limited in both responsibility and authority, being designed largely to plan and facilitate the development of statewide systems of higher education, to achieve balance and effectiveness by deciding who does what, and to recommend a proper apportionment of funds to individual institutions. In most cases, they have no direct legal power to interfere with the university in the management of its own educational affairs, but there is danger that these new super-boards, armed as they are with the right and duty to make decisions in some important matters and recommendations in others, may become a bit too ambitious and thus threaten the educational autonomy and vital individuality of our state universities. Yet they offer promise of much good through the careful planning and balanced development of varied post-secondary opportunities. They can be of great assistance to the universities as they seek to find their rightful places and perform their expected functions within the total structure. What is needed now during the formative period of these relatively new super-boards is an earnest and sincere effort, joined in by all parties concerned, to sharpen the definition of their responsibilities and to depict the roles which they can properly and usefully play to the advantage of all.

Within the university itself, major responsibility for charting a course into the future will reside in three groups or centers of power. These are the governing board, the president and his principal administrative associates, and the university faculty. Each will play a very significant role, and for real success each must have reason to respect the others. The surest way to failure will be to confuse the corporate structure of business with the proper management of university affairs, ruling by authority wielded in successive superior

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and inferior relationships. For example, anyone who is at all familiar with university life knows that all the laws in the land cannot make a really vigorous and proud faculty recognize and meekly submit to the admittedly superior legal authority of its governing board in professional matters of educational policy and practice. Neither will any president who pretends to be an educator remain as a docile and obedient servant if either the board or the faculty seeks to assume unwarranted power. What is so often forgotten is the fact that even within a university based upon the full force of law, the power structure is closely akin to that of a professional association. It is not a relationship of master to servant, of employer to employee. Instead, it is essentially a working together by equals, each devoted to a common cause and each having a proper role to play.

Governing boards of state universities come in all shapes and sizes, the personal interests and backgrounds of their members vary widely, and there is little uniformity in the ways by which they are chosen. Among all of these variables, only two or three constants are likely to be found. In almost all cases the prevailing majority will be laymen, and persons with professional knowledge of higher education will be few and far between. It is also probable that in comparison with the private universities, the governing boards of state universities will include fewer men and women of scholarly pursuits and personal involvement, of those who are widely read and possessed by a love of learning for its own sake. This proportionate lack of direct interest and experience in academic affairs poses a delicate problem for the wise governing board, one of judiciously tempering its use of legal powers that appear to be absolute and all-inclusive. This does not means that the governing board of a state university is powerless in setting goals and shaping methods. It has great power to determine the broad future of the university in all of its aspects. But if wisdom prevails, that power is seldom exercised through direct and authoritative intervention. Instead, it is used slowly but effectively through the choice of those persons, beginning with the president, upon whom a lay board must depend for professional opinions and strong educational leadership. It is difficult to imagine a greater tragedy for a university than having a board that misuses its power and reaches beyond the limits of its knowledge in academic affairs, particularly if that body is largely controlled, as sometimes happens, by one or two dominant and aggressive individuals who expect and demand servility from the faculty, the president, and even from their fellow board members.

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Within the next decade the nature of many a state university will be greatly affected by the choice of one man and, through him, a relatively small group of persons in important administrative positions. Countless bad jokes have been made about presidents, vice presidents, provosts, and deans, but the fact remains that these few, much as they may be ridiculed, have tremendous power for good or ill in the life of a university. Given a little time, their day-to-day decisions have a cumulative effect that weighs heavily upon any campus. Slowly but surely they can even shape the nature and fix the goals of a faculty that is lacking in vision, courage, and professional pride. Thus it is not fanciful to suggest that in the selection of a president and, subject to his strong influence, a few other important administrative officers lies the greatest power of any board to govern a state university. What then should be the nature of the office and the personal qualities of its occupant if a board really wants a president who will lead toward greatness? Not too long ago, when life was much simpler, the state university president was expected to be an experienced and respected leader in matters pertaining to the process of education itself. A handful of able associates could perform the necessary housekeeping chores, thus allowing him to give most of his time and attention to academic affairs. But times have changed. Most state universities today are very large and very complex establishments, so large and so complex that the major purpose of education sometimes seems to be only secondary. There are thousands of students to be housed and fed and their health and morals protected; millions of dollars to be gathered, spent, and accounted for; buildings to be built, cleaned, and kept in repair; alumni to be coaxed or cursed; an "image" to be created or preserved by using all the tricks of Madison Avenue—to say nothing of providing parking spaces for the faculty and seeing to it that the football team does not play like a bunch of amateurs.

It can be safely said that few business executives have more "publics" to please or tougher problems to face than does the president of a large state university today. Small wonder, then, that some governing boards tend to put too much emphasis upon purely administrative functions and skills, and correspondingly too little upon the role of the president as an experienced, respected, and courageous leader in higher education. As laymen, board members are understandably tempted to think of the office and the man in terms of their own experiences and desires. Longing for order, peace, and public acceptance in all things, they may overlook the hard facts that

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there can be little peace and quiet in any university worthy of the name, and that not infrequently they must be prepared to listen calmly but confidently to public protests as they are shouted from the very housetops. A subservient president, provost, or dean may help to protect them from the terrors of true greatness, but over the long span of years the university and those it pretends to serve will be the tragic losers. The job of being president of a contemporary state university calls for a man who first and foremost understands the true nature of his mission and who is willing to accept all of its personal perils. He must stand ready to face strong public criticism as well as to accept honor and acclaim. Knowing the almost impossible complexity of his many tasks, the wise president will seek to surround himself with experienced and tough-minded university educators who are willing to differ sharply and sometimes stubbornly. He should be able to maintain a proper balance, being the captive of neither his board nor his faculty but, instead, respectful of the rights of both, giving each its due. Above all, he ought to be the principal defender of the faith—faith in the pursuit of learning wherever it may lead, faith in his faculty, faith in his students, and faith in the long future of his university.

The third center of power to determine the future of a state university, perhaps the most decisive of all in the long run, lies in the faculty itself. Boards and presidents come and go but the faculty lives on, and in its ever changing but never dying corporate being may best be found the true embodiment of a university. Those who come and go may leave a faculty stronger or weaker in quality and purpose, but they have neither the time nor the strength to transform it completely. Firmly grasped and fully asserted, its professional right and duty to point the way in educational affairs can make it the most potent and enduring force of all. But it must be realized that this inherent power will be as nothing unless it is recognized and used, unless its matching responsibilities are accepted and met. Weakness, disinterest, or even outright abdication on the part of a faculty may leave to far less competent persons the power to chart the course of a great state university in the critical years immediately ahead. On this matter and at this moment there is cause for deep concern. Perhaps because of sheer size and the diversity of specialized efforts, too many faculty members seem to be losing their feeling for the university as a whole and even for their oneness in what ought to be a proud, powerful, and responsible profession. All too often their attitude is one of

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live and let live, of lack of interest in what may happen elsewhere on the campus so long as personal or departmental endeavors are not directly affected. This will never do if a faculty is to accept and really use its full responsibility and traditional right to help shape the future of the university. There must be a rebirth of pride of membership in a distinguished profession and of determination not to let its power to govern affairs rightfully its own go by default.

One can only hope that the governing boards, administrative officers, and faculties of our state universities may be blessed with wisdom and courage over the next few years. They will be the principal architects of a vast structure of public higher education, and the effects of their vision and artistry will long be felt throughout America. At worst their designs may become a blight upon the land. At best they may help to infuse new quality, effectiveness, and even beauty into all of university life. One can also hope that their building, no matter how well done, will never overshadow our many and richly diverse private colleges and universities, for it is from these institutions with their high degree of individuality that we can confidently expect a continuing flow of fresh ideas, of new standards for academic excellence, of sharp challenges to stultifying sameness. In their well-being, along with that of our state universities, may be found two mighty forces for good, each complementing the other.

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ROBERT S. MORISON

Foundations and Universities

AMERICAN foundations and American universities are both about a hundred years old. Both are devoted to the same ends, and both have in fact grown up together as members of the same family. Writing in 1930, Dr. Frederick P. Keppel, president of The Carnegie Corporation and one of the most reflective and quotable of all foundation officers, outlined the kinship as follows: "What social instrument is the foundation's nearest relative? I think, without any question, it is the university. There are, of course, obvious differences. Instead of a multitude of students the foundation may have only a handful of research workers. The foundation is a spender only, whereas the university both spends and earns. Instead of a central location, the work of the foundation may be scattered over all the world. . . . And yet to me, at any rate, the similarities seem more important than the differences. It is an interesting coincidence that the aggregate endowment of our foundations and of our colleges and universities is approximately the same—about one billion dollars, though the property of the latter is, of course, much larger. The responsibilities of the trustees, both in the control of finances and in the general direction of activities, are the same. In both, important decisions are based on group rather than individual judgment and derive their significance from this fact. Almost without exception permanent foundation executives have had their training in universities. Dr. Pritchett was called to the Carnegie Foundation from the Presidency of the Massachusetts Institute of Technology, and the Rockefeller Foundation called successively President Vincent from the University of Minnesota and President Mason from the University of Chicago. Furthermore, whenever a foundation needs temporary help, it turns uniformly to the university. It is only natural that the relations between the two have always been close. The founda-

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tions have learned by experience that one of the most satisfactory ways of disposing of their burdens of responsibility is to lay them upon the universities as operating agencies, sometimes in the form of general endowment, more often as time goes on, for specific purposes mutually agreed upon."[1]

A third of a century later the only modification one might wish to make in this account is in the matter of relative wealth. In spite of the rapid growth of foundations (total assets now estimated at about $12,000,000,000), the universities have grown even faster, and the endowment figure has become a less accurate index of financial strength. Many of our best universities depend quite happily on regular legislative appropriations. In addition, grants from the federal government and, to a lesser extent, from industry are increasingly acquiring a dignity and regularity which qualify them for the respect previously reserved for endowment income.

The foundation-university relationship, like all family relationships, has its tensions and hostilities as well as its satisfactions and rewards. Many of them, as we shall see, can be traced to the way foundations use universities to "dispose of their burdens of responsibility," to use Dr. Keppel's almost too well-chosen phrase. There is a very general feeling that the interest of the foundations in education has been growing closer in recent years and that their influence on universities has been increasing. Dr. Keppel's current successor began his address to the Association of American Colleges in 1956 with the words, "One of the most important trends in the work of the major foundations over the past thirty years has been their increasing commitment to education, and particularly to higher education."[2] However true this may be, it is not the same thing as saying that the relative impact of foundations is any greater than it used to be. Toward the end of this essay we shall try to gain a clearer view of this question, but first let us see what the foundation-university family looked like in the days of its childhood and early adolescence.

It may be a figure of speech to say that foundations and universities have both existed in the United States for approximately one hundred years. Rudimentary forms of both types of institution can be detected much earlier than this, and neither became fully developed until sometime later. The President and Fellows of Harvard College is over three hundred years old, and James Smithson left half a million dollars in 1829 "for the increase and diffusion of knowledge among men." A contemporary student of foundations feels that the

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latter event marks the beginning of the modern foundation era.[3] In the face of these facts I choose, somewhat arbitrarily perhaps, to regard the appointment of President Eliot to Harvard in 1869 as the beginning of the university in America, and the establishment of the $2,000,000 Peabody Education Fund "to aid the stricken south" in 1867 as the beginning of the foundation as we know it.

The beginning of graduate study and research at Harvard was quickly followed by the establishment of Johns Hopkins and the development of several other existing colleges into full-fledged universities. Similarly, the Peabody Education Fund established principles and working procedures which, somewhat more slowly, were taken up by the spate of new foundations founded in the first two decades of the twentieth century. The clearest line of descent is traceable perhaps in the General Education Board, which also devoted a major part of its effort to the "stricken south." From the turn of the century to World War II the history of American foundations is essentially the history of the several benefactions established by Mr. Andrew Carnegie and Mr. John D. Rockefeller. Other substantial trusts were also founded at an increasing rate throughout the period, many of which have been conducted with enterprise and good judgment. The Milbank and Commonwealth funds and the Kellogg, Markle, and Macy foundations have all contributed importantly to public health and medical education. Other organizations, such as the Russell Sage Foundation and the Twentieth Century Fund, have pursued their specialized purposes with distinction and even elegance. But for overall impact on universities, there is only one major league and its members are (or in some cases, were) The Carnegie Foundation for the Advancement of Teaching, The Carnegie Corporation, the General Education Board, The Rockefeller Foundation, and The Laura Spelman Rockefeller Memorial. Since the war, of course, a new superleague has been formed which so far has only one member, but it is still a little early to say what its final impact on the universities will be.

In part the pre-eminence of the major league was due to mere size. Taken together the Carnegie and Rockefeller benefactions were simply very much larger than anything of the kind had ever been before. Walter A. Jessup, president of The Carnegie Corporation, in his annual report for 1944 estimated that the $6,000,000 per year spent by the Corporation in the "early years of its existence" was one-fifteenth of the total income of all institutions of higher

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learning in the country. During part of this period the General Education Board was spending even more, so that there were probably some years in which these two boards alone decided on an expenditure of funds equal to approximately one-fifth of the total income available to universities and colleges. When one realizes that toward the end of this period other members of the same league were also becoming prominent and that essentially all the funds available to the foundations were free for the encouragement of innovation while almost all the regular income of the university was tied to ongoing commitments, it is easy to comprehend the overwhelming significance of the foundations' part.

Of almost equal importance was the matter of timing. The foundations happened on the scene at a time when higher education in the United States was almost unbelievably confused. There were several hundred institutions calling themselves colleges and universities. Admissions requirements were so vague that it was often impossible to differentiate colleges from high schools. The great mass of these institutions depended almost wholly on tuitions supplemented by periodic but uncertain gifts to meet running expenses. Only a few traditional institutions had significant endowments. The literature dealing with this period abounds with such terms as "confused," "unregulated," "substandard," "fresh water," and "fly-by-night." "Chaotic" is a particular favorite. The situation was clearly ripe for change; no modern nation could tolerate such a hodgepodge in its educational facilities. Change had indeed already begun when the Carnegie Foundation and, soon after, the General Education Board appeared with what seemed like infinite financial resources and what certainly were an extraordinary lot of officers and trustees.

The Carnegie Foundation for the Advancement of Teaching grew out of Mr. Carnegie's concern for the welfare of college and university teachers. Like most Scots he had a healthy admiration for education, and he was appalled to discover how poorly teachers were paid in the United States and how often their declining years were spent in abject poverty. After fifteen years of experience with the problem as a trustee of Cornell, he established The Carnegie Foundation for the Advancement of Teaching in 1905 with an endowment of $10,000,000.* Dr. Henry Pritchett, then president of the

* Increased to $15,000,000 a little later. In assessing Pritchett's influence it should be borne in mind that he was also Mr. Carnegie's primary adviser on philanthropic matters and in effect directed The Carnegie Corporation as well

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Massachusetts Institute of Technology, agreed to be president and immediately embarked on what was in many ways the most spectacular and at the same time most controversial of foundation careers.

Incredible as it now seems, the original intention seems to have been to provide "free" (i.e. noncontributory) pensions to teachers in all the nondenominational, nonstate-supported colleges and universities in the United States. Equally surprising was the provision that eligibility began after twenty-five years of service. It rapidly became apparent that even Mr. Carnegie's generosity was not equal to the task of providing pensions for all who were eligible under these provisions. But the early difficulty was compounded by a failure to predict the rapid growth of the nation's educational apparatus. It is interesting to observe how some of the most farseeing men of that time—or of any other time for that matter—underestimated the needs and achievements of the years immediately ahead of them. At the same time that Henry Pritchett was assuming responsibility for the old age of most of the college teachers in the land, the General Education Board was estimating "that 100 colleges, each with an endowment of $1,000,000, would provide for the country's need in the field of higher education."[4] This is not the place to recount the several steps taken by the Carnegie Foundation to free itself from the embarrassing enlargement of its original commitments.[5] Ultimately, the path led to the establishment of the Teachers Insurance and Annuity Association of America, which has played such an essential role in stabilizing the financial future of American college teachers. We may note in passing that the development of this service organization is an excellent example of the indirect way in which foundations may help the whole educational world in solving a common problem.

More important for our present purpose is the direct role the Foundation played in changing the character and raising the standards of American colleges and universities and indirectly of American high schools. In the first place, Dr. Pritchett found that if his organization was to pay pensions to teachers in colleges and universities, he would have to have some definition of what such institutions were. As Abraham Flexner put it with a gravity which may sound faintly ironical to today's anxious parents, "After careful thought the Foundation decided that no institution could be consid-

as the Foundation until Mr. James Rowland Angell took over the presidency of the Corporation from Mr. Carnegie in 1921.

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ered to be either a college or university unless the admission of students rested upon a definite basis,"[6] defined as a requirement of a four-year high school education. This step led in turn to the definition of a high school education in terms of "Carnegie units" which still underlie much of the digital determination of eligibility to enter the company of educated men in the United States. The resulting "regimentation" implied by this and other measures remains a subject of controversy even today, but there can be no doubt that higher and more uniform standards were badly needed by American education at the turn of the century, and equally that the Carnegie Foundation played an important role in establishing them.

Equally important perhaps, and a greater source of controversy and criticism, was Mr. Carnegie's restriction of his gift to nondenominational, nonstate-supported institutions. The latter requirement was removed in a few years, and the potential eligibility of state institutions to the approved list did a good deal to raise the standards in some of the more backward states and to encourage the healthy interchange of faculty between state and private universities which characterizes today's pattern. The nondenominational requirement persisted, although its rigors were somewhat mitigated by administrative procedure. After all, one could not avoid the uneasy memory that many if not most of the outstanding private colleges in the country had started under denominational auspices. Obviously some latitude must be allowed in the determination of just when a denominational college becomes a respectable secular one. On the whole, however, the rules were strict. For instance, one college was denied permission to require that "a majority of the faculty must be members of Protestant churches, but shall be so chosen that the members of no one church shall have a majority."[7] Clearly the Foundation was one of the strong influences which worked together to produce the largely secularized education characteristic of our country today. Another of the Foundation's regulations which seems less subject to dispute as a matter of principle nevertheless was a serious source of friction and resentment. In order to ensure a minimum of financial security and responsibility, the Foundation required that participating colleges have an endowment of at least $200,000. Furthermore, its officers seem to have been constantly inspecting the books to ensure that this fund was not eroded by the then common practice of borrowing from it to meet "emergency" expenses.

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Some idea of the kind of feeling engendered by these reforms may be gained from the following paragraphs in President Pritchett's *Ninth Annual Report*: "When a man sets a lump sum of $15,000,000 rolling around the country there is no knowing what it will do. It was supposed that the endowment provided by Mr. Carnegie for the pensioning of superannuated college professors would simply serve to ease the declining years of a useful and underpaid class of public servants. Who anticipated that in less than five years it would effect profound changes in the constitution and management of our colleges, severing venerable denominational ties, tightening up requirements for admission, differentiating the college from the university, systematizing finances, raising salaries, and in more subtle ways modifying the life and work of thousands of educators. . . .

"Mr. Andrew Carnegie has been sharply attacked for inventing the 'Carnegie unit,' which with a diabolical ingenuity and a clever use of money he is urging upon the universities, with a special and particular design on religious colleges. A committee of the National Education Association on normal schools at its last meeting 'viewed with alarm' the efforts of the Foundation to 'control the educational standards of the country,' and a Methodist Bishop has solemnly warned the country of the same awful tendencies. The hardest blow has come from an eminent professor of Harvard in a pamphlet entitled 'A Plea for Independence in Provincial Education,' printed and circulated by Middlebury College. . . . He warns to beware of educational advice from the Carnegie Foundation, for its experts are 'professional standardizers.' Nothing so cruel as this has been said about the Foundation during all its short life."[8]

The Foundation did not confine itself to commenting on the affairs of institutions with which it was directly involved. W. S. P. Bryan in his monograph *The Church, Her Colleges, and the Carnegie Foundation* sardonically commented, "Some persons might suppose that denominational institutions, being excluded from the benefaction of the Foundation, would also be deprived of the benefits arising out of the scrutiny of the President of the Foundation. This, however, is a hopelessly narrow view. He seeks to elevate by his criticisms, institutions which the Foundation declines to assist with its money, and not institutions only, but denominations as well."[9] Sometimes these comments were elaborated into formal surveys and published as Foundation bulletins. By all

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odds the most influential of these was Bulletin No. 4 on medical education, which we will describe later. One of the last was published in 1929 on American college athletics. It certainly aroused a great deal of comment at the time and has at the very least served to imbue college administrators with feelings of guilt over the more blatant forms of campus professionalism. At best it may have contributed to the relative purity of the better college conferences and to the de-emphasis of athletics at certain institutions like the University of Chicago.

The General Education Board was the next great foundation to become involved directly and on a large scale with institutions of higher learning. Conceived in large part as a device for alleviating the backwardness of the southern states, it continued to give priority to southern problems throughout its existence. Its influence, nevertheless, was also very great on higher education throughout the country, especially perhaps in the revolution it inspired and financed in the realm of medical education. On the whole the General Education Board seems to have been more tactful than the Carnegie Foundation in its approach to colleges, and more willing to accept the existing situation as a starting point. On occasion, however, it was also found waving the admonitory finger and insisting on specific conditions in connection with its grants. Most significant perhaps was its frequent use of the "matching" principle whereby an institution was required to raise a certain sum from other sources in order to become eligible for a grant from the General Education Board. This device was apparently invented by the Peabody Fund and is still frequently used today, notably by the Ford Foundation in its current series of grants for the general development of colleges and universities. Even the federal government has adopted the practice, notably in the program of the National Institutes of Health for providing building funds for laboratories. It is interesting to note that early criticism of the procedure is echoed today in a concern that efforts to match a government building grant may draw funds from other equally worthy and more poverty-stricken fields, that is, the humanities and the social sciences.

The General Education Board also threw its weight behind efforts to raise and regularize admission standards, to reduce the number of inadequately administered institutions, to strengthen the most promising of them, and explicitly to encourage the growth of strong universities in centers of population. As an important

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part of its contribution to the overall strength of universities it initiated and carried on for many years a series of studies on the financial situation of academic institutions, and worked out detailed schemes for keeping account of university expenditures. This program, under the direction of an unusually capable and tactful officer—Trevor Arnett—culminated in a book on university finance which had wide influence during the 1920's and 1930's. In the words of the historian of the General Education Board, "It was brief, simple, and clear. It could be understood even by a college president unable to balance his own checkbook."[10]

By 1923 the General Education Board had contributed approximately $60,000,000 to the general support of education (exclusive of medicine), most of it in the form of endowment. Although in later years much has been made of the need to concentrate on a few leading institutions and to avoid what Mr. Frederick Gates called the dangers of "scatteration," it is interesting to note that no fewer than 291 institutions received endowment grants during this early period. Clearly the work of the Carnegie Foundation and the General Education Board during the early years of this century had a quantitative impact in raising educational standards "across the board" which would be quite out of the question today. A more or less final accounting in 1960 of the Board's work showed that it had appropriated a total of $208,204,883.52 to universities and colleges in the United States, plus $62,520,491.98 specifically earmarked for Negro education. (Some of the latter was for use below the college level.) In addition to these general efforts the Board conducted a large fellowship program and supported certain specialized developments in teaching method and curriculum content. Most notable perhaps was its interest in so-called progressive education and "general education" expressed by substantial grants to such institutions as Antioch, Reed, Sarah Lawrence, and Bennington, and to experimental and honors programs at Dartmouth, Swarthmore, and Minnesota.

As one reviews the relationship between institutions of higher learning and the major foundations during the critical first two decades of this century, one finds oneself wondering if it is too much to say that the foundations became in effect the American way of discharging many of the functions performed in other countries by the Ministry of Education. Certainly the United States has always tolerated and often encouraged a greater variety both in subject matter and in quality of higher education than

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is found in any other part of the world. But by the turn of this century this variety of growth had reached a luxuriance that was quite unmanageable. If academic standards showed somewhat less variation than other attributes, it was only because none were very high. Candidates were often admitted to college with less, sometimes far less, than the equivalent of a high school education. Even the best institutions admitted numerous people with one or more "conditions." The length of the academic year varied from place to place, and in 1920, 75 per cent of full-time faculty members were receiving between $600 and $2,500 annually, although as early as 1891 the University of Chicago was paying some full-time professors $7,000. There is of course no clearly constituted critical authority in the United States with the power to enforce reorganization and establish standards of higher education. In the early decades of this century the foundations, with varying degrees of consciousness about what they were doing, exercised the most significant coordinating influence in the education world. Part of their power, perhaps the largest part, was the power of the purse; but around this central force were deployed a number of other arms.

The early foundations were fortunate in possessing an outstanding group of officers and trustees, most of whom traveled a great deal and all of whom were constantly thinking about problems of education and human welfare. Perhaps fortunate is the wrong word; more likely the excellence of these staffs can be traced directly to the executive acumen and instinctive methods of personal selection that had made Mr. Rockefeller and Mr. Carnegie the two most successful entrepreneurs of their time. In any case, the combination of money, brains, accumulated experience, and organized information which grew up in the offices of foundations gave them a crucial role in bringing order and excellence to American higher education. Our current methods of differentiating one level of education from another, of selecting students for admission, of keeping academic books, of arranging pensions and insurance plans for teachers are all directly traceable to the activities of foundations. The foundations also played a very important role in raising teachers' salaries after the First World War and in fostering several important reforms in curriculum content and teaching methods.

By the decade of the twenties it had become obvious that the objectives of foundations had to be limited in some way,

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however, and the limitation by and large took the form of reserving foundation resources for experimenting with new educational methods, developing research programs, and demonstrating the value of new knowledge. A series of phrases and aphorisms was invented to describe and lend glamor to this reorientation. Foundations managed "risk capital" and sought out "germinal ideas." They pushed at the "growing edge of knowledge," and a little later they developed chemical as well as physical powers as they "catalyzed" interdisciplinary reactions. Since even these specialized activities could not be pursued everywhere, increasing emphasis was put on developing a few key institutions as models to inspire others. Mr. Wickliffe Rose of the General Education Board, perhaps one of the few real geniuses in the foundation world, spoke tellingly of "making the peaks higher." The influence of this era on the universities was perhaps as large as the previous one, but it was certainly different in character. To a far greater degree it raised questions about how the responsibility for university policy should be shared between the university administration and various outside bodies—questions which have become intensified as government has increasingly entered the field with larger and larger sums for special purposes. This is a problem to which we must return later. But first let us glance at one of the most significant chapters in the whole history of foundations and universities—the reform of American medical education. In addition to its intrinsic interest, it forms a bridge between the era of general developmental support for universities and the modern era of emphasis on special projects and limited demonstrations.

Foundations have given aid to graduate and professional education in a number of areas; the law, dentistry, the training of teachers—each has had some share of attention. But nothing compares with the effort in medical education in amount of money, in number of foundations involved, and in overall impact both on the universities and on society in general. The story of American medical education is a success story par excellence, and it has greatly influenced our thinking about what foundations can do. It has been told a number of times, and it is still unfolding. We can pause only long enough to note a few highlights. In the first place, there is the commanding presence of Mr. Frederick T. Gates, an ordained Baptist minister and Mr. Rockefeller's primary adviser in philanthropic matters. He had "an almost mystic belief in the promise and potency of medical research" and "that it would have

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as a by-product 'new moral and social laws and new definitions of what is right and wrong in our relations with each other.'"[11] Secondly there was Mr. Abraham Flexner, the teacher in a Kentucky private school, commissioned by Andrew Carnegie to survey American and then European medical education. His report descended on the academic world as Carnegie Bulletins Numbers 4 and 6, respectively in 1910 and 1912.

The findings were scandalous; of 155 schools then extant only 16 required two or more years of college for entrance, and 50 a high school education or its euphemistic "equivalent." Eighty-nine asked for little or nothing more than the rudiments or recollection of a common school education. Most of these were money-making ventures undertaken by groups of physicians whose major interest was in private practice. Further details may be sought by the curious in the original bulletins, where they are set forth with a vigor and color of expression rare in academic writing. Confronted by this exposition Mr. Carnegie is said to have commented as follows: "Dr. Flexner, you have proved that medical education is a business, and I have no interest in underwriting businesses."* Mr. Gates took a rather different tack and gave Flexner his opportunity with the General Education Board. By the time Flexner resigned in 1928 the Board had spent $90,000,000, the number of schools had been reduced from 155 to 80, the principle of full-time dedication to teaching and research had been established for teachers in the clinical arts as well as in the basic sciences, and Mr. Gates had broken permanently with the Board and especially with Mr. Flexner over the issue of making grants to state institutions (Gates was against it). American medical education had gone from almost the bottom of the list for civilized countries to a position from which it jumped to the very top during World War II.

Of course the trend was upward when Mr. Flexner started. Mr. Eliot had cleaned house at Harvard in the seventies and the Johns Hopkins Medical School had been started under excellent auspices in 1893. Washington University in St. Louis and several state institutions were doing their best to establish satisfactory standards and the American Medical Association played a progressive role which may strike those who have known it only in its later days as rather strange. Nevertheless, the impact of $90,000,000 and the peppery insistence of Flexner on the highest possible standards were of paramount importance. Furthermore, the mani-

* Charles Dollard in a private communication.

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fest success of the operation firmly established medical education and research as a favorite object of private philanthropy. The Rockefeller Foundation, the Commonwealth Fund, the John and Mary R. Markle Foundation, the Josiah Macy Jr. Foundation, and many others have devoted a major part and often their entire resources to medicine and public health.

At first most of the financial support was concentrated on the development of a sound academic structure with emphasis on teaching. Toward the end of the twenties interest shifted to the support of research and gave rise to a trend which has spread from foundations to other agencies and which has become intensified in recent years as medical research has caught the attention of Congress. As foundation policy shifted from broad general support to more limited and more clearly defined objectives, relationships between universities and foundations became somewhat more delicate and from time to time frankly strained. Certain foundation officers and, less commonly, certain boards of trustees developed ideas of their own as to what university policy should be. Large sums of money were known to be available for the support of certain policies but not others. To the foundations this channeling of funds seemed merely the natural result of the sort of decision which anybody charged with the allocation of scarce resources for the advancement of human welfare must make. To some people in the universities it looked very much more like the arbitrary exercise of a power accidentally placed in the hands of a few self-willed and essentially irresponsible bureaucrats.

Almost all the things that can be said on this matter were actually said during the course of Mr. Flexner's campaign to establish full-time teaching and research for teachers of the clinical practice of medicine. Actually the idea was commonplace enough in Germany, where Flexner first saw it. Its introduction into Johns Hopkins was not first suggested by him but by a group of the faculty under the leadership of Professor Franklin P. Mall in the Department of Anatomy. Almost all the clinical teachers, however, wished to retain some of the responsibilities and privileges of private practice, and the very distinguished dean, W. H. Welch, would probably have preferred some moderate compromise. Flexner persuaded his board to hold out for the rigorous exclusion of private fees, and after two years of procrastination and debate, Welch finally asked for $1.5 million on Flexner's terms. The grant was made within forty-eight hours. Affairs moved much less smoothly

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elsewhere. President Eliot's repeated requests for help with a compromise plan at Harvard were brushed off brusquely enough to prompt a letter to Wallace Buttrick, the president of the Board, asking, "how could the insistence of the General Education Board on full time be reconciled with its theoretical hands-off policy? He had heard this policy 'stated with great distinctness by Mr. Gates when I first joined the Board, and have often heard it since. . . .' "[12]

Another member of the Board with less conflict of interest in the decision put the matter this way. "It is not a question of whether we are right or wrong in our opinions regarding the university or full-time basis of medical education. I think that where adequate funds are available we are absolutely right in favoring this policy, and I am very proud of what has been accomplished by the Board under Mr. Flexner's leadership in the field of medical education. But it is a question of whether or not we can psychologically and morally afford—in view of public opinion and our great wealth as a board—to be imposing, or at least requiring, detailed conditions regarding educational policy in medicine in elaborate contracts which can only be amended with our consent. . . . Personally, I think this policy unwise and fraught with serious dangers. . . ."[13] These and other complaints prompted the Board to liberalize in a series of steps the terms of its endowment grants, which at first had read almost like contracts in perpetuity. By 1937 recipients were under no legal obligation for more than ten years, although it was expected that they would spend the income for some "reasonably related purpose."

We have already seen how the various requirements of the Carnegie Foundation for admission to its pension plan aroused hostility, and how Henry Pritchett's sometimes gratuitous advice was even more intensely resented. In retrospect it is difficult to find serious fault with most of the conditions attached to foundation grants in this early period. Most, if not all, of these appear to have been directed at such general improvements in matters of basic policy and practice that any disinterested person must agree with them. Certainly no one today would seriously argue that private colleges do not need at least $200,000 of unencumbered endowment, that students should be admitted with less than a satisfactory high school record, that teachers and administrators should be required to profess the doctrines of a particular Protestant sect, or that professional schools should be conducted for the

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private profit of their owner-teachers. More serious questions arose toward the end of the twenties, when as we have seen the foundations recognized that their resources were not up to assuming responsibility for the general welfare of universities. Foundation funds were from then on increasingly reserved for new and presumably venturesome undertakings which, once they had proved their worth, would be taken over by the universities' general funds. The universities have by and large been extremely ambivalent about this situation. On the one hand they wanted the money and prestige which come with foundation favor. On the other, they wanted to be masters in their own houses, and they were worried and resentful about being required to take over the ultimate financial responsibility for projects thought up by others.

In point of fact, university administrators are never quite sure of how much they want to be masters in their houses. A very famous president has been quoted as saying on some occasions that the real role of foundations is to give what may seem like disproportionate help to outstanding faculty members. In this view the university can and should take responsibility for appointing such people in the first place and for meeting their basic needs, but the realities of community life make it very difficult to provide much more for one man than for others. Foundations need not feel the same inhibitions since they do not have to live continuously in the same community. At least one of the large foundations discovered this truth for itself during the thirties. After experimenting for a while with so-called fluid research funds to be apportioned by a faculty committee, it decided that its own officers could make better selections much more easily because they need not engage in the logrolling which even the most dedicated intellectuals seem to find unavoidable as members of a faculty.

On other occasions, with a slightly different twist, this same president could take quite a different view. This correspondent remembers quite clearly discussing with him the possibility of taking over an enterprise which had been initiated with foundation help some twenty years before, and which had been continuously supported by it during all that time. It had been the first program of its kind in the country, and it was generally recognized as an outstanding success. To the foundation officer it was an almost classic example of the use of "risk capital" to demonstrate the validity of a new idea which should be taken up enthusiastically by the regular resources of the university. Mr. President felt quite

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differently. "Why, that is just one of those things worked out by Alan Gregg and Dean——and the university has no responsibility for it whatsoever!" (Incidentally, the program has continued to find support from the teaching hospital in which it was developed as well as from outside sources.)

There appear to be no general rules for deciding on who shall represent the universities' side in a negotiation with a foundation. In the early days, when grants were made largely for general purposes, the president and the board were the obvious principals. As foundations increasingly limited themselves to the support of research and the development of special programs—area studies for example—it became common to carry on the major substance of the negotiation with the people actually doing the work. This was especially true for organizations like The Rockefeller Foundation which rely heavily on a professionally trained staff. By and large a biologically trained foundation man found it more rewarding to talk with a biologist, or an economist with an economist, than to exchange formalities with administrators. On at least one embarrassing occasion things went so far that a foundation board actually voted a grant and the formal letter of notification brought the first news of the negotiation to the university president. His reply stated very clearly and with a certain nineteenth-century crustiness that the university had no intention of embarking on this one-half million dollar program and that the president and fellows would therefore not accept the grant. Nowadays few foundations would act without having received a written statement from the university administration expressing its knowledge of and interest in the proposal. Even today, however, some universities have no clearly established procedures for negotiating with outside agencies. In others, formal procedures respect at least the appearances of authority, but in practice many administrators find it difficult to withhold approval when one of their faculty members enters a negotiation for outside support. This is especially true if the faculty member is distinguished in his own field and a capable money raiser.

It is hard to demonstrate that central authority, at least in the stronger institutions, was ever systematically threatened in the days when private foundations were the principal source of outside funds. Here and there a university might have been encouraged to expand in a direction that later proved unwise or a foundation could seduce a willing faculty member to develop a stable for one

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of its hobbies. Speaking before the Central Society for Clinical Research in Chicago in 1952, for example, W. Barry Wood pointed to the error committed by foundations in insisting that psychosomatic medicine be set up in a separate department rather than being encouraged to diffuse throughout existing ones. But it would be equally difficult to show that administrative authority was seriously eroded by solvents applied from outside during this era. In recent times the problem posed in theory by foundation practices has become a practical reality, or perhaps even a clear and present danger, by the allocation of very large sums from government agencies. Opinions differ on the gravity of this problem, however, and as experienced a university official as McGeorge Bundy, seeing the situation from a different vantage point in 1963, expressed the view "that on balance the federal government makes its grants and signs its contracts with a better perception of the real needs of the higher learning than one can find, on the average, in the major private foundations."[14] If this is true, it is good news since the power wielded by government is obviously very much greater. Whether the quotient—amount of available money divided by perception—still favors government over foundation support may remain an open question.

If the foundations are guilty of using their power to persuade universities to do things they would not otherwise have done, how serious a crime is it? What are some of the things they have persuaded universities to do? One of the most obvious functions of foundations in the period which began in the 1920's and which is continuing even today has been to call attention to neglected areas of learning and to make it possible for universities to give them more attention. The Laura Spelman Rockefeller Memorial was one of the earliest to emphasize the importance, for example, of knowing more about what are now called the behavioral sciences. In one of its most spectacular moves, the Executive Committee voted funds in 1928 for the creation of the Institute of Human Relations at Yale, and this aid was continued by The Rockefeller Foundation after the two organizations merged the following year. The Institute enabled representatives of several fields—anthropology, psychology, physiology, psychiatry, among others—to work closely together on the overall problems of human behavior. The program attracted heavy financing from several foundations for over three decades and contributed much to the development of the individual departments involved, but for various reasons it failed in its basic

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"interdisciplinary" objective. Very probably the effort was too extensive, perhaps too spectacular for its time. Very little was known then about the difficulties of interdisciplinary research, and some observers have noted that the appointments to the principal positions in the program were all given to men of an uncommon degree of individuality. However that may be (and in spite of some other difficulties to be mentioned later) a large number of more modest grants from several foundations have helped to put the behavioral sciences in the firm position they occupy today. Perhaps deserving of special mention is the series of efforts by The Rockefeller Foundation which played a major role from 1932 until late in the 1950's in moving the focus of academic work in psychiatry from the state hospital to the laboratories and teaching wards of the medical school.

At least equally important, if somewhat less well known, has been the role of foundations in fostering work in the more exotic languages which led in several instances to the establishment of interdisciplinary groups devoted to the study of the entire culture of a nation or region. One of the earliest moves was that made by The Rockefeller Foundation in conjunction with the American Council of Learned Societies to establish summer institutes at several universities for the study of the languages and cultures of Japan, China, and Russia. The program developed rapidly and by 1941 provided the background for the intensive studies of a series of relatively unknown tongues to meet military needs. Immediately after the war the Carnegie and Rockefeller foundations took the lead in helping to establish comprehensive centers for the study of all aspects of Russian culture and the Soviet socio-political system at Harvard and Columbia. The importance for public enlightenment and the determination of national policy of the long series of papers and monographs produced by the eminent scholars in these two institutions can scarcely be overestimated. Somewhat similar organizations dealing with the Far East have been developed in the same way at Cornell, California, Washington, and others.

Many other special subjects or areas have been boosted into the university limelight—anthropology by the Viking Fund, psychosomatic and social medicine by the Commonwealth Fund and others, medical sociology by the Russell Sage Foundation, higher business management by the Alfred P. Sloan Foundation. The list of important developments of this kind growing out of foundation-university cooperation since the war far outruns our limitations of

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time and space and the investigative ability of this historian. Before leaving the subject, however, it is necessary to say a few words about the function of foundations in supporting projects of high risk. These risks may be due simply to the uncertainty that anything of consequence will emerge, or they may arise from the threatening nature of the subject under investigation. It is widely believed, or at least widely said, that a primary function of foundations is to help in the exploring of new areas of knowledge into which other investors are too timid to intrude. The very partial list of new university programs presented above as illustrative of foundation activity certainly supports the belief, but it is not easy to say whether it was an unwillingness to take risks, an inability to see the opportunity, or simply a lack of funds which kept other possible investors away. Now that government granting agencies are supporting research in the natural and social sciences, it appears that they are quite as prepared as the private foundations ever were to support projects which carry a fairly low probability of anything important emerging as a result.

The record in regard to projects of a "controversial" or threatening nature is considerably clearer. The foundations have a long record of contributing to research into problems of race relations, sex behavior, and even simple economics, many of which would still be considered too hot to handle by most, if not all, government agencies. At the present time, for example, several of the major foundations have active programs for the study of the dynamics of population growth and appropriate means for its control, most of which were started long before any government official was willing to admit that a problem even existed. Indeed, it must be remembered that federal support to education per se is still "controversial" and most of the general support to education given by foundations, let alone their strong interest in progressive education and other experiments, would have been impossible for government. Quite recently the Ford and Rockefeller foundations have developed multimillion-dollar programs to enable Negro colleges and selected integrated ones to give special attention to disadvantaged groups in our population. Certainly the foundations have been able to move faster than government has in this respect; and it is probable that even if it wished a government required to act in accord with the equal protection clause might encounter insuperable difficulties in designing similar programs.

It remains perhaps to comment on one of the more arguable

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aspects of the relationship between foundations and universities. As we have seen, foundations have frequently been instrumental in encouraging the development of special purpose groups within or attached to universities. The problem is an important one especially since the government has encouraged the development of somewhat similar devices for the achievement of special, not always academic, purposes. Although it seems relatively easy to recognize the important contributions to knowledge of at least some interdisciplinary "institutes," it is a good deal less easy to be sure of their overall effect on university organization. In some cases they have served as little more than escape hatches for the sort of personalities which do not fit easily into conventional departmental structure. In almost all cases they have led to friction with the latter over appointments and promotions. The friction arises over the fact that in most institutions the senior tenure appointments are portioned out among the conventional disciplines. By and large the senior members of the institutes hold their appointments and draw at least part of their salaries from the departments, but they do their work in the institutes. As the years go by the prestige of their accomplishment becomes more and more identified with the institute rather than with their home department, while the department is left paying the bill. More serious problems concern the junior people. They are usually supported by outside funds and hold nontenure appointments as research fellows, associates, or lecturers. Their reputations are almost wholly "interdisciplinary"—they may be Russian experts but they are not historians, linguists, geographers, or political scientists. At least, none of these departments think that such people are sufficiently identified with a basic discipline to justify their obtaining one of the coveted tenure appointments.

There is no doubt that situations similar to the above have led to real trouble in several institutions, but there is much less certainty about how to assess the underlying cause. On the one hand there is the possibility that the existing departmental structure of our universities is indeed obsolescent and badly in need of reform. On the other is the horrid thought that the attempted reform is simply the misbegotten invention of an impatient foundation officer anxious to solve some immediate practical problem. Fortunately, as time goes by, univeristy administrators seem to be solving the problem by maintaining the traditional formal structure and encouraging informal interdisciplinary cooperation by carefully con-

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sidering the specific interests of new appointees to traditional chairs, by judicious planning of libraries and other facilities for use on an interdepartmental basis, and by such devices as faculty clubs and dining rooms where interdepartmental barriers may be surmounted in conversation and if necessary dissolved in alcohol. The foundations have probably also become more cautious in recent years, and many of them have learned to inspect proposals for interdepartmental institutes for signs of foundation bait.

A particularly attractive instance of how foundations may exert important influences without hurting anyone's feelings is provided by the two very modest appropriations made by The Carnegie Corporation to send a few outstanding scholars and men of affairs to Africa before practically anyone had heard of the place except for Stanley and Livingstone and Theodore Roosevelt. Shortly after the war the Carnegie people foresaw that Africa was likely to be the scene of important political, social, and economic changes. They tried for some time to interest university groups in developing programs similar to the ones that had been so successful for other areas, but outside of the late Professor Melville J. Herskovits at Northwestern, nobody seemed much interested. They therefore fell back on the idea of sending prominent people out to Africa just to have a look. It is of course very difficult to assess the outcome of a program as unstructured as this, but it seems reasonable to suppose that the diaries, lectures, and luncheon conversations produced by these prominent men did have a significant effect in preparing the learned world for the deluge of requests for information and help which descended on it a few years later.

There are of course many other indirect ways of exerting influence on universities. Foundations have been the principal source of support for organizations like the National Research Council, the Social Science Research Council, the American Council of Learned Societies, the American Council on Education, the Institute of International Education, and numerous others which have been important in training teachers, providing research support, acting as "clearing houses" for information, and so forth. Incidentally, it is organizations like these that, useful though they may be, often give foundation officers bad dreams. By and large they tend to be expensive with high overhead costs, their output is intangible and hard to judge, and their officers are pleasant, conscientious people easily turned into personal friends of the foundation officers responsible for their future security. Only rarely

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do such organizations develop a constituency with sufficient financial resources to keep them going. Finally, they often conduct programs closely parallel to those of the sponsoring foundations themselves. These facts all combine to make it uniquely difficult to maintain a normal foundation posture toward them. Another related class of organizations, which has proved more capable of independent existence, is composed of those which perform specified services engaged by universities on a quasi-commercial basis. One of these is the Teachers Insurance and Annuity Association of America. Another is the Educational Testing Service, which grew out of several previous organizations all of which received heavy foundation support, especially from the General Education Board and The Carnegie Corporation. Here again, as suggested earlier, we find that foundations have played a role in providing centralized services to education that in other countries would stem from the government ministry.

What of the future?

Were it not for the advent of the Ford Foundation, it would be relatively easy to predict that the relation between foundations and universities would continue the trend which set in during the 1930's—away from general support for endowment, buildings, and overall running expenses, and toward specialized research projects, interdisciplinary "programs," "experiments" in education, and so on. For a while it looked as if the Ford Foundation might even try to outdo the pioneers in assuming across-the-board responsibility for financing broad areas of university work. The ninety millions distributed to all the medical schools in the country suggested this possibility, especially since this program was shortly followed by a number of large block grants for not very clearly specified purposes to other divisions of a number of universities. Recently a new program which might be thought of as a sophisticated version of the General Education Board's matching grants for endowment has been undertaken. Appropriations of up to $23,925,000 with the strong inference that more is to come have already been given to several carefully selected universities and colleges for general purposes on condition that matching funds be obtained from other sources at a ratio of 2 or 3 to 1. This program has already had a considerable impact not only on the institutions actually receiving grants but on many others which have been prompted to review programs and make plans which might attract future support. In a time when so much financial help comes to

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universities earmarked for special purposes, the emphasis of the Ford Foundation on broad general purposes and long-term institutional development is at least refreshing and probably highly significant.

For the more conventionally sized organizations the trend must probably continue to be toward special programs, with declining interest in medicine and the natural sciences and a cautious increase in the promotion of the social sciences, the creative arts, and humane scholarship in about that order. The natural sciences and medicine have of course long been a favorite object of foundation interest. The foundations were conceived by practical men, and they have always been more interested in practical results than is usual in the best university circles. The medical and natural sciences have had, of course, an astonishing practical success during our era, at least partly because of foundation support. It is thus inevitable that the foundations should be pleased and favorably inclined toward them. But foundation boards are coming to realize that there is not a great deal of point in playing in a game in which the government agencies hold just about all the chips. In any case, stronger arguments can be made for substantial private support for the still controversial areas of the social sciences and the arts.

Before going on to discuss possible future developments in these areas it may be necessary to step aside for a moment and deal with a general impression that the foundations have not only been more interested in the natural and medical sciences than in other branches of learning but also considerably more successful in developing them. It is a little difficult to know how these impressions arise, but the first at least may need some qualification. Over the years the major foundations have given much more for the general support of universities and for specific support of the social sciences than they have as grants earmarked for the natural sciences as such. The sciences never occupied an important place in the programs of the Carnegie Foundation, The Carnegie Corporation, or the Ford Foundation. Of the roughtly $325,000,000 expended by the General Education Board, $94,000,000 was, it is true, devoted to medical schools, but only a fraction found its way to the support of science per se. Even The Rockefeller Foundation, with its heavy emphasis on public health and medicine, found over $160,000,000 for the humanities and the social sciences. And even some of the nominally medical support has had an important bearing on

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the development of the social sciences. For example, the famous Hawthorne experiments with small groups were carried out by a team of investigators which owed its existence to a Rockefeller Foundation grant recommended by its medical officers. What little we know in a quantitative "empirical" way about sex behavior owes much to the National Research Council's Committee for Research in Problems of Sex, supported for nearly thirty years by foundations interested primarily in medicine. Whatever sense of dissatisfaction there may be about the results of foundation aid for the social sciences can more easily be traced to the existing state of the art than to any special neglect or incompetence on the part of individuals either in the foundations or in the universities.

It cannot be too often remembered that the natural and medical sciences have spent the twentieth century reaping the luxuriant crops grown from seeds planted in the fertile soil of the Po Valley during the sixteenth and seventeenth centuries. The social sciences still cannot be sure that they have got hold of the right seeds. But this is not the only difficulty. The natural world is still pretty much what it was in the fifteenth century. What we knew about it then is still valid today. But the social and political world is very different. In a sense we have manufactured ever more problems for the social scientist to confront. Some of these problems are so severe as to threaten our very existence, and we naturally keep turning to the social scientists for help. When Galileo gave us two new sciences, we did not expect him to design a jet airplane or even a paddle-wheel steamer for us; but when Gunnar Myrdal tells us what our color problem is we at least hope that he will simultaneously provide the solution.

The sooner one abandons the production of practical results as a criterion for project selection in the social sciences the better. But what is then left as a guide? Here the investor in the social sciences has a more difficult time than do those of us who deal with the natural sciences. The natural sciences have developed a well-organized texture. At any one time there is a hierarchy of questions more or less waiting to be answered, and at the very top are some questions which have not been asked or even formulated. Most competent people concern themselves with the recognized questions. They gain their satisfactions and incidentally persuade their supporters by devising ingenious ways of finding the answers. Every informed person knows what the questions are and has an estimate of the difficulty of answering them. At the very top level,

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where one asks questions nobody has thought of before, there may be more difficulty in recognizing excellence; but in modern times even the great innovators are usually promptly recognized for what they are. The social sciences do not appear as yet to have the same agreed-upon texture. It has not proved easy to break social behavior down into a series of discrete steps each of which can be studied separately with each resulting bit of knowledge ready to fit into its place as an obvious part of an ever-growing edifice. The result is that it is difficult to tell what proposals are likely to give important results. Even when the results come to hand, one has difficulty in telling whether they really are important or trivial or, if important, whether they are not merely elaborations of the obvious.

Even when the foregoing difficulties are overcome, boards of trustees of both foundations and universities are likely to be uneasy about work in the social sciences. Even though the record seems to show that the application of the laws of motion and of thermodynamics have changed the socio-economic state of man to a far greater extent than anything the social sciences have ever done, it is the latter which disturb us more. For example, it seems hard to divest ourselves of the notion that it is dangerous to Anglo-Saxon justice to try to understand how juries make up their minds, and equally dangerous to something called morality to find out what college students do about sex. In one way or another, misgivings of this general type still manage to delay the progress which foundations and universities might make in understanding society. At an even deeper level, perhaps everybody feels threatened by the very idea that there can be such a thing as a science of social or individual behavior, for such sciences must ultimately be based on the assumption that behavioral output is a describable function of input. Even to people who are not much inclined to theological or philosophical speculation the idea that human behavior may be determined by outside "forces" raises painful questions about the nature of consciousness and human will. With all the listed handicaps, it is surprising that the quantitative social sciences have fared as well as they have. It is noteworthy, moreover, that they have been supported much more heavily and that they have produced more satisfactory results in this country than in Europe. Could it be that this superiority is in part due to the presence of several large foundations in the United States?

It is in their support of the humanities that the major founda-

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tions are most frequently criticized. They are said to be both timid[15] and inept. Above all, they fail to understand the importance of individual effort and achievement and to find appropriate ways of supporting it. Most critics omit the Guggenheim Foundation from this indictment, as well they might. In this unique setting Mr. Henry Allen Moe has used his innate good judgment, cultivated good taste, wide acquaintance with talented individuals, and a certain individual self-confidence which sometimes borders on puckishness to set a record which others might do well to emulate. He is, in fact, the only foundation officer of prominence who exercises those qualities which made the noble patrons of the arts so successful in an earlier period. Perhaps the creative artist and the humane scholar simply require more individualistic treatment than the universities or the foundations normally know how to provide.

In addition to simple ineptitude and lack of interest the foundations have other problems in their relation to universities when dealing with the humanities. The foundations, because of their dedication to "pioneering," new ideas, and the improvement of human welfare, are interested primarily in the creative aspects of the humanities, and they are apt to have some sort of utilitarian criterion at least in the backs of their minds. They realize, of course, that the humanities cannot currently be defended as contributing to greater production of food or even to better health (in spite of sporadic attempts to use music in treating the mentally ill), but they are prepared to think of a first-class drama or symphony or even a ballet as producing some sort of valuable increment in human enjoyment. The universities, on the other hand, are singularly uneasy in the presence of creative artists and have never really figured out what to do with them. A particularly striking illustration was provided at Harvard during the 1920's when Mr. Lowell decided that the 47 Workshop (drama) was beneath the dignity of gentlemen and scholars. A few state universities, and rather curiously the Carnegie Institute of Technology, have more recently found ways of integrating living rather than dead theatre into the university, but the Ivy League is still pretty uneasy about giving the mummers a free hand. The last couple of decades have also found the universities trying to rectify the situation by providing posts for artists-in-residence, but the very special handling given these packages only emphasizes the difference between them and proper university positions.

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It has always struck the scientist as odd that the university has provided such an excellent environment for the creative scientist but has been so ambivalent in its relationship to the creative artist. Foundations also have come to expect creativity from the university scientists whom they support, and their officers and many of their board members continue to think up ways of helping the humanities to become more creative. But just when they think they may be succeeding, they find a distinguished humanist and academic administrator like Jacques Barzun asserting with his usual candor and perhaps somewhat unusual intensity that creativity of any kind (even apparently in the natural sciences) is out of place in the "House of Intellect." Considerably though not completely frustrated in their search for opportunities to support the creative arts in universities, the foundations have turned to those aspects of the humanities which at least *look* something like science. The greatest successes seem to have been in the theory of linguistics and its application to language teaching. In pursuing these objectives it has of course been particularly reassuring to find the use of computers in the development of theory and of tape recorders in the applied language laboratories.

There was a time when the humanities were fostered in universities primarily for the light they threw on problems of human conduct. In the essentially secular societies produced in the later days of Greece and Rome one naturally studied and discussed the lives of great men and the ideas of great philosophers for clues to the good life. The moralists of the religious era resurrected many of these ideas and incorporated them into natural law, which formed the backbone of instruction in the medieval university. As religion lost its force in the nineteenth century, Matthew Arnold eloquently set forth his devotion to humane letters as the principal guide to morals. The great bulk of the humanists in our universities follow this earlier tradition and regard themselves neither as creative artists nor as experts on the theory and practice of language, but primarily as curators of the "best that has been known and thought in the world." But there now seems to be a certain vagueness both in the minds of the humanists themselves and on the part of the foundations as to why it is worthwhile to study culture as Arnold defined it. Whether it is a becoming Christian humility or a basic lack of self-confidence is hard to say, but the humanists generally seem now to have a curiously difficult time in forcefully asserting their claim to support

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on the scale increasingly enjoyed by the social sciences—not to mention the luxurious life of the natural sciences.

Part of the problem of the humanities may stem from their very real difficulty in being sure that they really do have something important to say about some of the more spectacular contemporary moral questions deriving from the use of atomic energy, the uncontrolled growth of populations, or the possibility of directing human evolution. Conversely, the constant growth of science and its apparent capability for controlling many traditional evils has tended to change the direction while many men look for solutions to the problems of living. Much of the pain and tragedy of life has, in fact, been controlled or abolished by appropriate changes in the environment brought about by science. There therefore seems less need for the cultivation of those inward virtues which the humanities help to cultivate as protection against the onslaughts of an unkind fate. Finally, we come to a somewhat special explanation of the ambiguous position of morals in a modern university. For a variety of reasons which we cannot really go into here, all of the best and most of the better institutions of higher learning in the United States are aggressively secular in their orientation. On the other hand, morals and ethics continue to be closely identified in the public mind with organized religion.

Attempts at a serious intellectual approach to problems of morals thus tend to fall between two stools. The major universities have most of the best minds but feel inhibited from dealing explicitly with morals because of the common assumption that morals are a branch of religion. In part the intellectual's hesitancy comes from a reluctance to appear as a religious zealot, especially a sectarian one, and in part because he feels it wiser to avoid intruding on another domain. On the other hand, organized religion in the United States has only occasionally been intellectually oriented, and in recent years it has concentrated principally on social service and matters of administration. Theological speculation or any serious exploration of the basis of moral values is largely left to Europeans except for the occasional Niebuhr or Weigle. The foundations concerned with such problems have therefore had to content themselves with occasional forays into the field of secular philosophy, but few have found satisfaction in the modern trend toward more and more tidy ways of talking about talking. Rather more rewarding, perhaps, has been the series of small grants made by The Rockefeller Foundation for work in legal and political philosophy,

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but it would be too much to say that these have as yet served to change the universities' largely custodial and analytical attitude toward problems of value.

I go into these matters in some detail since it seems to me that one of the most challenging areas for the future development of the relationship between foundations and the colleges and universities lies precisely in the area of the humanities as the study of man in his moral relations with other men and with the pattern of the universe. It will not be easy for many reasons—the whole idea sounds pretentious, there are few obvious handles to take hold of, many of the issues are "controversial," the field is not easily divisible into projects or programs that form the usual grist of the foundation mill, and so on. But the arguments *for* such a policy are even more persuasive. In the first place, there clearly is a need—intellectuals everywhere worry about the drifting, meaningless quality of twentieth-century life, much of our most talented youth seems disoriented and wanders in and out of college without rhyme or reason, the less talented contribute to a rising tide of delinquency and crime, and the suicide rate is one of the best indices of "advanced" culture that we have.

In the second place, other branches of knowledge—physics and chemistry because of their bearing on war and industrial production, the biological sciences because of their relation to health and food production, and increasingly the social sciences because of the hope they offer of understanding and controlling some of the more disturbing aspects of human behavior—are all receiving heavy financial support and much public encouragement. It seems very unlikely and probably undesirable that similar heavy support should be provided to the humanities from government sources. This fact alone should give the field a higher priority in the eyes of private organizations. Thirdly, far from being opposed or at the least indifferent to humane learning and moral values, the sciences are providing more accurate ways of describing moral problems and are actually calling attention to types of moral problems which heretofore have not been recognized. As I shall try to show in a forthcoming article, one of the most challenging tasks for the arts might well be the translation of some of the cold objective conclusions of science into more immediately meaningful subjective terms. Such translation is needed if many of the findings of science are to be used effectively in changing human conduct, for it has been well said that "few men are moved by a statistic."

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A concern with moral values might well be combined with a concern for another relatively neglected area—the liberal arts college. For various reasons—their largely religious origin, their somewhat isolated position, their relative lack of pressure or opportunity to produce new knowledge, their concentration on educating undergraduates rather than on training of graduate students—the liberal arts colleges have maintained at least a nominal interest in the humanities as essentials in the formation of good character. In theory at least and probably in practice it is easier for the faculty of a liberal arts college to live and function together as a "company of scholars" than it is in a great university with its emphasis on specialization, its unwieldly size, the overinvolvement of many of its ablest faculty in the world of affairs, and so on. At least it seems worthwhile to try to make the most of the apparent advantages of the small college in any effort which tries to combine the scientific and the humanistic modes of looking at man's predicament. The opportunity for the foundations lies, at least in part, in the fact that the liberal arts colleges are having a harder and harder time to recruit and hold first-class brains against the strong attractions of higher salaries, lighter teaching "loads," luxuriously equipped laboratories, and beautifully stacked libraries of the great universities.

These and other considerations like the sharp improvement in secondary education and the demand for advanced courses and specialized research by local industry have prompted many colleges to consider the development of graduate studies. It remains to be seen whether there is really a place for the "small university," but there well may be. Such an institution might continue to find it difficult to compete with its big sisters in specialized and expensive fields like high energy physics, but it might be just the place for the cultivation of what might be called "advanced general studies." Furthermore, the products of such a graduate school with judicious emphasis on synthesis as well as analysis might make better college teachers and much better guides to the good life than many who emerge from the conventional absorption in more and more about less and less. The opportunities should be particularly attractive to the host of small to medium sized foundations which have sprung up since the war. Even quite a modest sized foundation can play an important role in helping a college through the difficult transition to graduate work. Funds are needed to improve salaries, for release from the overheavy demands of the classroom, and for

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periodic leaves to consult with colleagues in other institutions or to work in specialized libraries or laboratories. It is frequently very difficult for the administration of a small college to provide what look like special privileges to selected faculty members. It is the natural business of a foundation to make such distinctions, and it is, of course, far easier for it to do so since it lives outside the circle of possible resentment.

Another area for expanded foundation effort may lie in the need for facilities which can be shared by several institutions. Some large-scale experiments with scientific laboratories, such as Brookhaven, or with regional deposit libraries already exist, but much more needs to be done to adapt the concept to the needs of smaller colleges and universities. The development of rapid storage recall and transmission systems on a regional basis might go far to meet the needs of scholars in small institutions for library facilities which cannot practically be provided locally. Indeed, it seems not impossible that the imaginative use of modern methods of information processing and communication can essentially erase the small college's handicaps of isolation and size while retaining most of their advantages.

While we are on the subject of the small college or university and the small to moderate sized foundation, we may observe that the small foundation has four alternatives before it. First, it can scatter its resources over a number of projects. Second, it can concentrate on a single subject as, for example, the Viking Fund has done so successfully in anthropology. Third, it can concentrate on a limited geographical area as the Hill (Louis W. and Maud) Family Foundation has done so helpfully in the northwest territory. Fourth, it can increase its impact by combining its efforts with a number of others. The second and third courses are the ones usually followed, but there would seem to be room for even further concentration and cooperation. For example, a foundation might select only one or two small colleges in its neighborhood for special help of the sort we have outlined. As the problem of developing more advanced work arises, a group of colleges and their sponsoring foundations could confer with one another about the construction of library and laboratory facilities to be used in common, rotating professorships, and other matters.

Another area which offers such obvious possibilities for foundation help that one wonders why it has never been exploited can be mentioned only briefly. Why has not some large foundation tried

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to do for the law what the General Education Board and several other foundations already cited in this report have done for medicine? The corpus of laws developed over millenia for the regulation of community life is after all one of the great contributions to human welfare. Its effects are obvious enough to satisfy the most empirically minded foundation officer, and with all its excellencies it is still far from perfect. To the casual observer there seem to be many places where the law needs to catch up with modern knowledge of the nature of man, the reliability of various sorts of evidence, and so on. And there must be better ways of settling the liability cases growing out of automobile accidents which now encumber our courts to such a scandalous extent. The present writer is in no position to go into details as to how the foundations might effect reforms in legal education and practice similar in quality and extent to those they brought about so triumphantly in medicine, but there does seem to be a real opportunity here.

Emphasis on the expansion of foundation activity into relatively new areas does not mean, of course, that there is a diminishing role for the classical business of providing general funds, the support of specific research projects, the granting of fellowship aid, and the judicious encouragement of interdisciplinary institutes. The close family relationship between foundations and universities observed by Frederick P. Keppel, and mentioned in our opening paragraph, has been a most productive one in the past and should continue to be so in the future. Many of the characteristics of American universities owe their existence to the peculiar tendency of wealthy Americans to leave their capital in trust for the public welfare.

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PETER H. ROSSI

Researchers, Scholars and Policy Makers: The Politics of Large Scale Research

Introduction

THE CAMPUS of a major university was once marked by definite borders, on the one side of which were the distinctively academic buildings—dormitories, classrooms, libraries, laboratories and administrative buildings—and on the other side, the motley architecture of the town. Nowadays the physical boundaries of the university have blurred as academic activities have taken over the nearby town structures to house a proliferation of "centers," "institutes," "bureaus" and "laboratories." Some of the new organizations, like the Argonne National Laboratory or M.I.T.'s Lincoln Laboratories, are located at some distance from the campus; others cluster close by in old townhouses or in large Victorian homes; and some, such as Brookhaven, are located, like the theology of community churches, close to no particular position. The concept of a Campus on which all academic activities take place within the distance that can be spanned easily on foot by students and professors has given way to a more diffuse spatial pattern in which classrooms, dormitories and libraries are still at the center* but in which the periphery occupied by institutes and centers is vaguely defined and discontinuous. To walk from one end of the installation to the other is often a task beyond the capabilities of an academic procession.

The physical marginality of the new academic organizations reflects their academic marginality. Traditional university tables of

* Classrooms and dormitories also mark the center of the spatial distribution of prestige, with research centers and institutes making their importance to the university by how close they are to this center. When space is reallocated through the construction of new buildings, a fierce jockeying occurs with each striving to improve its prestige by minimizing its distance from the university center.

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organization lose their branching symmetry in attempts to place them in their proper places in chains of command, and university officials sometimes ignore them in the planning of university expansion, perhaps in the hope that if ignored they will vanish. Academic departments or schools to which the research centers may be attached are somewhat at a loss to deal with them, for the personnel of the centers and institutes are hard to assimilate into the rank and privilege systems of academia. The personnel of the centers are not quite sure of their identity, for on the one hand they are members of the university community, while on the other their major commitments are not to the teaching and training functions which are at the center of the university's activities.

The first research center to evolve within the structure of the university was the library, occurring at a stage so deep in the beginnings of the institution that we usually do not classify the library as a center for research. In the modern sense of organizations devoted primarily to research and organized separately from departments, centers were first established by the natural sciences, with the astronomical observatories representing the first of the structures to be physically separated from the central campus.* In the empirical branches of the social sciences, which have only recently developed strong research programs, the precedents for research centers are now being established. Social science research centers are connected with almost every one of the major universities, the density varying from the proliferation on the Berkeley campus, on which it seems as if every full professor has his own center, to the sparser distribution at Johns Hopkins, where there are only one or two presently in existence.

The major concern of this paper will be with some of the organizational consequences of the development of research centers within the university environment. Properly to deal with this topic would require a breadth of knowledge which has yet to develop about how such centers are organized in a wide variety of fields.[1] I will be concerned primarily with the newer social science research centers, bringing in such information on other types of centers as is available in the very sparse literature on the organization of academic research, from direct knowledge of the few such research centers I

* As telescopes increased in size and power and as the atmosphere of urban centers became more and more an obstacle to good observation, the observatories changed from being a dome on one of the campus buildings to separate installations located where the atmosphere was clearer.

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have been able to visit and from the excellent survey of social research centers conducted by P. F. Lazarsfeld.[2]

Because social science research centers have been established in any great numbers only in the last two decades, there has been a great deal of diversity in their organizational forms as universities and departments experimented with different arrangements. The experimentation, as I will indicate later, is an index of some tension between the research centers and the more traditional departments. To highlight this tension, I will deal with this topic as an analysis of political processes. More specifically, I will deal with the way in which the organization of research has affected the relationships among three roles—the *social researcher,* the *scholar* (or academic man) and the *policy maker* (officials of foundations and agencies which provide support for research). It should be clear that I will be using the term "politics" in a very broad sense to cover the processes by which power and resources are distributed in the system of relationships in which these three roles take part. Under this broadened definition, the study of politics then becomes the study of decision-making so that there is a politics of business enterprises or of university administration and, more relevant to our present case, a politics of research.

The essential nature of the American university* is being affected by these organizational developments, a topic to which the final section of this paper will be devoted. Universities may be more properly entitled "multiversities" as Clark Kerr claims: certainly the extraordinary diversity of activities which are now put within one large organizational framework must necessarily affect the nature of teaching, research and the administration of our foremost institutions.

* Most colleges and universities remain unaffected by these developments which are characteristic primarily of the larger and more prestigeful. But the total system of higher education must necessarily be affected by changes which are taking place at the head of the academic procession. It is extremely easy to lose sight of the fact that most American institutions of higher learning do not include research as a major goal. In 1963 there were close to 1,500 institutions which granted bachelor's degrees, of which about 1,000 were accredited institutions. But only 150 granted higher degrees, and the top 30 graduate schools turned out about two-thirds of the Ph.D.'s. The distribution of the production of academic knowledge follows the distribution of higher degrees granted, with the top 30 schools producing the greater part by far of scholarly books and articles. It is these 30 institutions to which I refer as the "major universities."

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I. Why Research Centers Evolved

The major missions of the first-rank university include both training and research. Since the establishment of graduate study in America and its diffusion to the major centers during the early part of this century, training has come to include both undergraduate and graduate instruction, and research has included both scholarly and laboratory activities.

There is no doubt that the amalgamation of training and research in the professorial role is an alloy at the same time beneficial to both activities, while tension-producing. Professors are supposed to be both scholars and teachers, with the proper mix variously defined from department to department and from university to university. University officials measure the worth of their institutions by two major outputs—neophyte scholars and the end-products of scholarship: books, articles, monographs and patents. University business managers have to handle both instructional and, increasingly, research accounts, each type with its own peculiar logic. Even buildings and grounds departments are baffled by the different space and maintenance requirements of research and teaching activities.

The tensions between the somewhat contradictory activities of teaching and research have several sources. Within the professorial role the tensions are produced partly by the different phasings of the two activities: teaching demands that a set schedule of classes, seminars, etc., be met, while research has variable and unpredictable time demands. In addition, the two activities compete for time: the proper nurture of undergraduate and graduate students can absorb the full-time attention of an instructor, but so can his scholarly activities.

Within the organization of the university at the departmental level, the tensions are produced by other mechanisms. The allocation of authority within a department need only be extremely rudimentary as far as teaching goes. The basic unit of activity is the course, for which a professor is responsible and which is conducted essentially without supervision. The division of labor within a department centers around the curriculum in which responsibility for courses is allocated among department members. I venture that more friendships among colleagues in departments have floundered on the rock of curriculum revision than over any other cause. But once a curriculum has been fixed upon, instructors go their own way

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relatively unsupervised by their department chairmen or by other administrative officials.

In contrast, research activity which involves more than the minimum division of labor between a scholar and his acolyte graduate students produces continual organizational tensions. Decisions have to be made continually, responsibilities for particular activities have to be allocated to different persons, men have to pace their work to the paces of others. There are strong strains to produce a bureaucratic organization for research activities in which there is a much more clear line of authority than is necessary for the teaching activities of a department.

The evolution of research centers can be seen as one attempt to solve by segregation the tensions between teaching and research: research institutes were to be the proper place for research and the departments to remain the proper place for teaching. To be sure, there are other reasons for the establishment of research centers, some of which will be touched upon later in this paper. The important point to be made in this context is that the organizational needs of teaching and research are different and lead to different types of organization.

Not all research activities lead to the establishment of centers and institutes. Research and scholarship in the more humanistic fields typically have not led to the establishment of centers and institutes, and those established have not been very long-lived.* The major reason for this difference between the humanities and other fields lies in the fact that the humanist scholar evolved his research organization so long ago that we no longer recognize it as such but have incorporated it into the heart of the structure of the university. A central building on every campus is its library, and the division of labor into "library science" and scholarship constitutes the basic organizational structure of research in the humanities.** The scholar in the humanities is essentially a solitary worker using the facilities provided by a library surrounded by a few graduate students, each working with him but not with each other.† The division of labor

* When such "centers" have arisen (e.g., the Russian Research Center at Harvard), they have often taken the form of *ad hoc* departments designed to cover an area of study common to several disciplines.

** This is not true of many European universities, where professors are expected to acquire and maintain private collections of works in their fields, and where university libraries are poorly supported and have sparse collections.

† Indeed, when collaboration of an enduring sort does occur, it is hard to assimilate. I know of the case of two young historians who had worked as a

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involved in research in the humanities is a primitive one in which each scholar has at best one or two persons of considerably lesser skills working with him, and in which there is a relatively minor amount of direct collaboration among colleagues.

The example of the humanities underscores the organizational imperatives that give rise to research centers in other fields. Research centers arose when research activities demanded collaboration among colleagues that went beyond the traditional organizational pattern of scholarship as presently exemplified in the humanities.

II. Research Centers in the Social Sciences

In the social sciences a good illustration of the organizational impetus toward the establishment of research centers is provided by the development of sample surveys in the last two decades. One of the major research developments in the empirical social sciences has been the set of techniques which has enabled social scientists to gather their own data on a broad enough scale to make statements about significant segments of large scale societies at relatively reasonable costs. Sample surveys have become a basic research tool in sociology and social psychology,* are a major tool in psychology, and are increasingly important in political science and economics.

Properly accomplished, a sample survey is a large scale enterprise involving a fairly elaborate division of labor and using a considerable amount of resources. This is best exemplified in the two major academic survey centers, the Survey Research Center at the University of Michigan and the National Opinion Research Center at the University of Chicago, as well as the survey activities of the Bureau of the Census or some of the better commercial firms. It takes a combination of skills, ordinarily not residing in a single person, to conduct a large sample survey properly. Even smaller surveys

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team as graduate students and obtained, with great difficulty, appointments to the same department. Their historian colleagues developed so strong an antipathy to the pair that neither was reappointed even though their scholarly production was considerably greater than the average, and either alone would have been (and eventually was) a proud acquisition for separate major departments of history.

* For example, about one-third of the articles in the most recent two years of the major professional journals in sociology were based on surveys, outstripping by a good deal the employment of other methods.

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(involving perhaps the sampling of a small city or neighborhood) can be carried out by a single person only in an inefficient manner.

Not all survey research is carried out within the context of large research centers. Each year scores of surveys are conducted by single individuals or by small groups of researchers: a sample of articles in professional journals or of Ph.D. theses would provide ample evidence that it is possible for individuals and small research groups to conduct such surveys by themselves. However, there is a severe limitation to such research. In the light of current technical standards, one can discern that such surveys are often rather poorly designed and executed, and, at best, severely limited in their coverage.*

Properly to conduct a survey, one needs to assemble at a minimum the following skills: (1) sampling; (2) questionnaire construction (an art perhaps rather than a skill); (3) interviewing; (4) data processing; and (5) statistical analysis. All of these would be needed to conduct a survey of an area larger than a small city or neighborhood.** To sample survey a population to which one ordinarily wants to generalize implies skills at a high enough level to require specialization. Furthermore, a large scale sample survey is expensive. Properly conducted national surveys (or for that matter, regional, state, or metropolitan surveys) collecting about 2,500 interviews of about an hour's length can cost anywhere between $50,000 and $125,000.† Surveys of special populations (for example, chiropodists or college students) can cost more or less depending on the exist-

* The limitation of coverage gives rise to bewilderingly contradictory findings in some areas of knowledge. Thus, the score or more of studies of child rearing conducted over the last two decades have produced results which can lead to no firm conclusions concerning what are the *facts* concerning how children are reared in this country.

** Institutionalized populations (e.g., students or soldiers) can be reached more easily, and hence surveys of such populations are favored by the social scientist working on his own.

† Of course, there are commercial firms who will collect data from a national "sample" and present you with a report for less than $10,000. But if you examine their procedures, it is evident that the sampling plan is either nonexistent or highly deficient, the quality of interviewing haphazard and suspect, the number of interviews small (perhaps less than 500), and the analysis sketchy. While I am convinced that for many purposes such an operation may be all that is necessary (for example, to prove that most housewives are women or that people do not look kindly on foods that smell of sulphur dioxide), where the precision of data to be gathered is critical, such surveys do a considerable disservice.

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ence of reliable sampling frames for the populations in question.

Survey research did not develop initially within universities but was grafted onto them after it had passed through the critical periods of infancy. The National Opinion Research Center is still an independent corporation affiliated with the University of Chicago. Michigan's Survey Research Center was set up initially by a group of researchers who had worked together in a survey organization run by the Department of Agriculture during the forties. This is not to deny the contributions that academic men have made to survey research, but merely to state the historical fact that surveys were being made long before survey research centers became accepted parts of university organization. There are undoubtedly many reasons why survey research did not develop inside the groves of academe, but among the most important reasons is the organizational setup of academic departments. Essentially, an academic department is a collection of scholars whose work is only minimally integrated in a division of labor sense. Professors are required to teach courses, and these courses are supposed to be organized in some sort of rational way. In American universities, departments do not engage in common scholarly enterprises in which a research task is broken down into components, each member of a department taking one component as his contribution.* Indeed, when an academician refers to the independence of the academic life,** he is usually referring to the fact that once he has met his teaching obligations (over which he has often a great deal of control) he is free to pursue his own intellectual interests within the limits set by local production standards and the amount of research funds he is able to obtain. Indeed, so pleasurable is the lack of a defined division of labor that any attempt to engage in large scale research

* In contrast many European universities have maintained a different internal rank system in which there is usually only one professor for each major field and under him (and at his disposal) a number of assistants whose research activities can be directed by him. In adopting the German model of universities, American universities introduced a fundamental modification by allowing the appointment of many professors within each field, a development perhaps fostered by the larger number of American universities and the competition among them for personnel.

** I recall many incidents in which men from the industrial and commercial world have been baffled by their inability to locate the lines of authority within a department. Neophyte book salesmen have been floored by the discovery that a department chairman has little to say about adoption of textbooks, and irate conservatives railing against the imprudent radicalism of a press statement have been unable to find a "boss" to complain to.

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enterprises has led to the grafting onto university structures of organizational entities in which such a division of labor is possible rather than imposing such a division of labor upon existing departmental structures.

Large scale research in the social sciences is no exception to this generalization. Large scale survey research in the universities is conducted by institutes and centers whose organizational principles involve a hierarchy of command and a distinct division of labor. Indeed, the larger the scale of research, the steeper the hierarchy and the more elaborate the division of labor. Thus the two university-affiliated centers which conduct national surveys (Michigan's Survey Research Center and Chicago's National Opinion Research Center) have more complex structures than that of the Bureau of Applied Social Research at Columbia or the Institute for Social Research at North Carolina, the scope of whose work is more restricted in scale.

Characteristically, institutes and centers have "directors" while departments have "chairmen," expressing in the titles of their chief administrative officers the greater authority of the one as compared with the other. Because of his greater authority the director's role is more critical to the proper functioning of a research center than a chairman's role is to the prosperity of a department. A research center functions best when its director provides both intellectual and administrative leadership.* It may have been the pious hope of university administrators as they allowed and in some cases fostered the establishment of research centers that the departmental organization and the institute organization could be integrated very closely. Indeed, the ideal pattern in some ideal sense might be one in which the personnel of a department and the personnel of an institute would be one and the same, and that while teaching courses, sociologists, for example, would run themselves along departmental organizational lines, and while doing research they would run themselves according to institute lines. In fact, this has never occurred. Rather, either the department has restructured itself along the hierarchial lines of the center (as was the case for Columbia's department of sociology) or the center never developed a good division of labor (as was the case for North Carolina's institute) or the two structures remained side by side with some overlap

* Paradoxically, this means that a man makes the best director when he is in the prime of his intellectual powers, but academic statesmanship favors the mature older man past his intellectual prime.

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of personnel (as in the case of the Survey Research Center and the National Opinion Research Center) but with considerable tension between the two.

The strains against the amalgamation of these two types of organization arise out of the relatively greater demands for precise timing and phasing of activities that result from an elaborate division of labor. As long as he meets his classes and writes books and articles, a professor has fulfilled the demands of his job. In contrast, a researcher working in the context of a research center has to pace his total activities so that they gear into the work of the sampling section, coding section, tabulating section, etc. Were the academic department organized along the lines of research centers, professors would soon chafe under their apparent loss of freedom. Even where professors have attempted to work within the context of a hierarchically organized research center, the collaboration has been short-lived, for the demands of directors to maintain the flow of work among the specialized components of the center have been viewed by the academician as an infringement on his prerogatives. Furthermore, a director must oversee the quality of research as it is being performed, while the individual scholar has the end product of his work judged by his colleagues located usually at some distance. In response to the difficulty of integrating departments and research institutes, the latter have developed separate staffs to the extent that their operations are on a large scale. Thus, within the institutes has developed a set of persons whose primary task is research, whose position within the academic community is ambiguous because they have only "courtesy" rank within the instructor-to-full-professor hierarchial order, and whose freedom to control their own activities is considerably less than those of departmental members.

However, not all social science research centers have taken the direction indicated above. Others have more or less deliberately remained paper organizations without a significant division of labor (except between clerical and professorial personnel) providing convenient sally ports from which the professors can emerge to gather funds from foundations and government agencies. Most university social research centers are of this sort, collections of individual professors surrounded by their project staffs (composed of advanced graduate students), providing secretarial services, but mainly serving as administrative rubrics for the purpose of obtaining research support. Other research centers have developed organizational struc-

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tures analogous to libraries, with their functions mainly to provide services to the professors.* Some of the newer survey research centers—for example, that established at Berkeley—have developed as their mission the expediting of research initiated by faculty members. Computer centers are also constructed on the same lines, manned by technicians and designed to serve the faculty.

Where research centers have accommodated themselves to the traditional academic organizational scheme by becoming primarily administrative subunits of departments or service arms of departments, tensions between centers and departments are minimized. In either case there is little infringement on traditional academic prerogatives, and no challenge to the freedom of the professor. But, as in the case of research centers which have engaged in research on a large scale, an attempt has been made to develop an elaborate division of labor, and tensions have arisen. The ability to embark on research on a greater scale has been bought at the price of coming into conflict with traditional organizational principles of academic departments.

There is little doubt that being a professor is more prestigeful than being a researcher. Tenure—that mysterious state of grace into which a professor is elected by his colleagues and from which he can fall only by committing crimes of the most revolting character—has not generally been extended to the institute personnel except on the highest level. Researchers' salaries have been generally higher for persons of the same age and academic accomplishments, but professors can and often do supplement their salaries from outside sources. Drawing a balance, it appears as if the professor has the edge; he has the higher prestige, the greater security, the greater freedom, and sometimes, through his outside activities, the greater income.

In fact, it now appears that there have grown up two distinct career lines—that of researcher and that of professor—with relatively little interchange between the two occupations. If one follows the researcher line, one ends up a second-class citizen in the university community; if one follows the professor line, one ends up a first-class citizen but restricted in the scope of the research in which one can engage. This accounts for much of the low quality

* Amitai Etzioni has pointed out that hospitals are also service organizations in the same sense as are libraries. Doctors have not organized themselves along elaborate organizational lines but use their hospitals primarily as service units.

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of research reported in the professional social science journals. The individual scholar working on his own cannot command the kinds of skill that make for a first-rate piece of research. This also accounts for the oft-noted tendency on the part of academicians to start up their own research centers to increase their scope and power while looking upon the similar activities of their colleagues as academic imperialism.

Although the full-time personnel of a research center may not have the same psychic and sometimes monetary rewards of the members of the professoriat, there are advantages to full-time membership which in time may outweigh disadvantages. At its best functioning, the research center can multiply by some factor the efforts of a researcher, raising his work productivity as well as its quality. More than one better-than-average social scientist has been raised to the level of first-rank social scientist because he has had at his command the facilities and organization that a large scale research center represents. The efficiency of a division of labor cannot be gainsaid. But there are more subtle advantages as well that stem from close contact with colleagues of varying interests and accomplishments on a day-to-day basis. When a social research center is working well, it is indeed an exciting locale for one's work. One can feel the excitement in the snatches of conversation at lunch or in the visits made by colleagues to each other's offices.

Although the community of social scientists does not yet have the extensive character reported by Holton in which collaboration in the writing of an article may be the joint work of as many as ten different individuals from several institutions and two or three countries,[3] social science research is beginning to take on more and more of a cooperative slant. I surmise that the advantages of collaboration and close contact will become more obvious when the social scientists have more in the way of specialization in knowledge. At the present time, there is hardly a subfield of sociology and social psychology in which a good social scientist could not pick up as much detailed knowledge as the prime experts in that subfield to write an acceptable proposal to a grant-giving agency. When almost everybody knows as much as everyone else (or could know it easily) the benefits of collaboration are not as obvious as in the case when knowledge from one subfield could materially advance the progress of work in another.

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III. The Financing of Large Scale Research

Large scale research in any field is expensive whenever it requires an extensive division of labor (as is the case for most social science research) and/or large capital investments in equipment. Unlike research in the humanities, in which continuing support is provided by the capital investment represented by a library collection and by regular allocation provided in the university budgets, other types of research tend to be financed on a project-by-project basis.

In empirical social research the *ad hoc* nature of financial support has important implications for the kinds of research that can be conducted and the kinds of personnel who can be attracted to research centers. Surveys on any appreciable scale are quite expensive. Furthermore, such research has grown increasingly expensive as its technology becomes more complex and as survey researchers demand more and more precision from their data. In some lugubrious sense, it is a shame that probability sampling was developed to a degree that it could be applied to the sampling of human populations, for the greatest increase in cost of surveys stems from the adoption of this technique. To draw a probability sample is expensive, and to administer personal interviews to the sample once drawn is also quite costly, particularly relative to the costs of surveys conducted under the now largely abandoned quota sampling technique. For example, the best known of the National Opinion Research Center's studies, the 1947 study of the prestige of occupations, cost a little more than $9,000 to conduct. We are presently conducting another study on this topic for which we have received a grant of more than $150,000. While the prices of many things have gone up since 1947, few have increased as much as large scale surveys.[4]

What are the implications of such high costs for surveys? One of the important consequences is that few individual researchers can command enough in the way of resources to mount an extensive survey operation. The limited scope of researches reported in the professional journals in sociology and social psychology are one of the consequences. Incidentally, this further exacerbates the tensions between the research institutes and the departments. In departmental research courses, graduate students are being taught how to do research in ways which their teachers themselves are unable to follow. Professors eye with some envy the large project

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budgets of the research centers, which are put at the disposal of persons often junior to them in status.

The most important implication of the high cost of surveys is that there are only a limited number of sources from which sums on this scale can be obtained, and the purposes for which such funds are given are limited in a peculiar sense. Few of the sources from which funds flow into social research give grants of one hundred to two hundred thousand dollars lightly. The major foundations and government agencies from whom funds on this scale are usually obtained are reluctant to part with this much money without being quite convinced of the practical importance of the survey in question. Hence large scale survey research is generally "applied" social research; that is to say, the grantor is convinced that the results will have some immediate bearing on policy formation. The high cost of social research has meant a close tie with the machinery of policy making.*

Some specific examples may help to illustrate dramatically what this implies for large scale research. At NORC we have developed a fairly strong program of research into the related areas of manpower and higher education, support for which comes primarily from the National Science Foundation and the National Institutes of Health. One of our studies involves a longitudinal study of the June, 1961 graduating classes of American universities and colleges. In 1961 we sampled that year's crop of new Bachelors for the purpose of studying how this group found their niches in the occupational world. The interest of the sponsoring agencies, in this case the National Institutes of Health, the National Science Foundation and the Office of Education,** was quite clear and direct: they

* Recently, NORC was visited by Mr. Louis Moss, who is director of the Government Social Survey in Great Britain. The Government Social Survey is a survey research organization within the British government which conducts surveys at the request of other government agencies. I was not surprised to find a great similarity between the structures of our two organizations, but I was very much surprised to discover that we had conducted so many parallel studies, his organization on behalf of Her Majesty's government, and NORC on behalf of federal agencies and private foundations. We could find parallel studies on about two-thirds of ours and about one-half of his projects. This means that together with other survey research organizations connected with universities or functioning as commercial enterprises, NORC is serving the same function for the American policy maker as the Government Social Survey functions in England.

** Coordinating three federal agencies is an administrative feat so massively delicate that it is surprising that our federal government manages to exist at all.

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were concerned about the impact of federal scholarship and fellowship policies on postgraduate training and how such policies might be changed to channel more of the talented into postgraduate training leading into critical scientific and professional niches. Spread over a period of five years, the total sum allocated to this project is half a million dollars. Two of these agencies are supporting a replication of this study on June, 1964 graduates, and I predict that we may be conducting such studies on a periodic basis in the future. Another of our researches is concerned with the educational activities of adults, particularly measuring participation in such adult educational activities as formal courses, and on-the-job training. The sponsor in this case is the Carnegie Corporation, which has a strong interest in supporting adult education and whose staff feels that there is a definite lack of information on how much adult education is going on, who participates, and what is being learned.

These two cases are typical in the sense that the surveys in question are supposed to yield information of value to the sponsoring organizations. They are also typical in that the initiative for the studies came from the sponsors and they have taken a strong interest in their outcomes.* The consequence of this pattern of research support is that if one wants to study a particular subject, one has to find some foundation, agency or person with a direct interest in the outcome of the study and with some understanding of and concern with social research. Consider the following hypothetical example: Suppose one were interested in recruitment to the humanities, such as history, English literature, and the fine arts. Support probably could not be found for a study of recruitment into these fields because there is no source of funds which has a direct interest in this problem and which is *at the same time* appreciative of the value of research.

These remarks should not lead to the erroneous impression that all of the work of the large scale survey centers is applied. This is not the case. Each manages to get some projects sponsored which are of no particular applied interest whatsoever, although it must be admitted that this happens infrequently and usually involves research on a lesser scale.** At least as important is the process of

* Indeed, in one case we had difficulty keeping the client out of our hair, so eager was he to receive the results.

** In recent years, the establishment of a Social Science Division within the National Science Foundation and behavioral research study sections within the

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broadening applied interests to cover research topics of considerable intensive interest but only indirectly related to each applied interest. For example, there are probably no funds available to study directly the supply of humanists mentioned earlier. NORC did get a considerable amount of money to study recruitment to the physical, biological and social sciences, engineering, medicine and education. However, we are *also* studying recruitment to the humanities because we were able to convince the clients that it was more expensive for technical reasons to restrict the research only to those who might go into the "hard science" fields. Similarly, although Carnegie is primarily interested in adult education, NORC was able to broaden the study out to include other uses of leisure time because it is more fruitful to study adult education in the context of a study of leisure time activities than by itself.

What I have just described might be called passive "robinhooding"—as some researcher facetiously named the broadening of objectives of a policy-oriented sponsor to include concerns which are of intrinsic interest but for which no funded (or vested) interest is likely to be found to supply support. There is also the active type of robinhooding, in which one starts out with an objective of some intrinsic interest and then fits it to the applied interest of some agency or foundation. NORC's study of the career plans and aspirations of the June, 1961 graduates grew in part out of a long standing interest in measuring the productivity of colleges and universities as affected by their organizational characteristics. Robinhooding in both its passive and active forms leads to considerable tension between the policy maker and the researcher. On the one hand it looks as if the researcher is hoodwinking the policy maker; on the other hand it can be viewed as a process of bargaining in which the research center agrees to do something in return for support to do something else in addition. Incidentally, it often turns out that in the end the policy maker is quite pleased with the results of the extended study, perhaps more than he would be if he were given only that which he wanted originally.

In the negotiations between the researcher and the policy maker, there is an important weapon in the hands of the researcher—his technical expertise often puts the policy maker at a disadvantage. In the end, technical considerations must override other considera-

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National Institute of Mental Health has increased considerably the amount of funds available for basic social research.

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tions if research of any great scientific stature is to appear. Indeed, one of the major reasons why government agencies come to the universities rather than to the commercial firms is that we are more concerned with technical purity than are the latter. Incidentally, when the market researchers and the advertising agencies want to have something that literally will stand up in court, they also come to the academic research organizations.

Of course, this pattern of financing large scale social research means that there may be projects of considerable intrinsic merit which are not supported at some particular point in time because there are no sources of support committed to research in the areas in question. For example, when the first draft of this paper was written in 1963 there were apparently no sources of support for research on the impact of the Negro protest movement on both whites and Negroes, even though this was (and is) one of the most salient features of the public life of our nation in this decade. We had an unparalleled opportunity to study a social movement in the making, but government agencies are understandably reluctant to support such research; and private foundations, for reasons I cannot fathom, also showed little interest. It is my impression that this is an unusual case. Ordinarily, given the diversity of interests represented by the large foundations and government agencies, there are usually some sources whose interests are close enough to a project to consider supporting it.

The financing of large scale social research has put a distinct advantage into the hands of those social scientists who have affiliated themselves to the social research institutes. Foundations and government agencies properly conceive of such organizations as having better capabilities to carry through such research, and more of a sense of responsibility to carry them through. But there are disadvantages as well. Large scale social research is likely to have an applied emphasis, and worthy research endeavors may go unsponsored because none of the sources of large funds have an interest in the topic to be studied.

IV. Implications for the Contemporary University

The basic structure of American universities scarcely has had a chance to react and accommodate to the great development of research activities within the university in the past forty years, and virtually no time at all to adjust to the growth of social science

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research in the two decades since World War II. The final pattern of accommodation has probably not yet appeared, to judge at least by the fact that few university officials, researchers and professors in any institution are sure that they have found a proper pattern in the organizational arrangements worked out on their campuses.

Partly because the solutions are not yet in sight, the problems resulting from the broadening of the goals of universities to include research as well as teaching are very much visible. There can be little doubt that the teaching function of universities, especially of undergraduates, is carried out differently today than when research was carried out by professors primarily as an extracurricular activity. In the major universities fewer and fewer faculty members are much less frequently exclusively teachers. In my own department of fourteen members, only two members are entirely on the departmental budget. The "teaching load" is becoming an item over which bargains are made in order to entice new faculty members.* Only in the small liberal arts college is teaching considered an activity through which a faculty member can make his major contribution to the university community.

It is hard to judge whether research activities unduly intrude upon the teaching function or whether it enriches teaching.** Certainly the faculty member who is wrapped up in his research may not be able to spend the time necessary to prepare lectures which are of the highest quality, but his lectures may have the benefit of being more up to date and alive because his research is on the frontiers of the field in which he is teaching. Perhaps the most serious inroad upon the university arises out of the rise of research as an alternative to entering upon a career of academic statesmanship. Departmental chairmanships appear to be going begging and

* In a joint NORC-Bureau of the Census study of persons in critical occupations and professions, the probabilities of scientists in all fields designating teaching as their primary duty declines drastically with age. For example, nine out of ten biologists over 55 with the Ph.D. list teaching as a primary duty while only one out of every ten under 35 make the same claim. Similar although not as dramatic contrasts can be made for other scientific fields.

** Harold Orlans makes the point that the best graduate students are assigned duties as research assistants while the poorer quality students are given jobs as teaching assistants, thereby laying the groundwork for sorting out the best into research and the poorest into teaching. There is no evidence to support his argument in NORC's study of graduate students (Seymour Warkov's "Subsidies for Graduate Study," NORC Report #97 [1964]). Teaching assistants and research assistants are roughly of the same quality.

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on occasion few candidates have appeared as contenders for deanships. The rewards arising out of research are greater and lead to national recognition, while the rewards for chairing a department are restricted in the usually highly egalitarian department and arise out of local rather than national acclaim.

The teaching of graduate students appears to me to have benefited considerably from the development of research in the university. No longer is the dissertation the sole research experience of the new Ph.D. Ordinarily he has participated as an apprentice on perhaps several research projects of his major mentors. He has also probably had some practice teaching as a teaching assistant under the general supervision of an experienced lecturer. Since graduate study is more and more the goal of new B.A.'s,* the experiences of new entrants into the scientific and technical occupations more and more include some period of close and intimate contact with a member of the faculty. The intimacy of contact between faculty and students has disappeared in this era of mass higher education, to be replaced by intimacy centered around research on the graduate level.

It is more difficult to discern the trends concerning the roles of professor and of researcher. On the one hand there are strong trends toward the amalgamation of the two roles, with research institutes becoming more intimately parts of the university community. On the other hand, the trend toward research activities on larger scales and involving larger sums produces a strain toward the development of quite separate research organizations. Professors are doing more research, and greater demand exists for persons who will do only research. Right now the researcher and his institute are located at the periphery of the campus in both geographical and social structural senses, while the traditional departments are located at the heart of the university. The converted buildings in which the institutes are housed will give way to more permanent structures built with their use specifically in mind, and second-class citizenship for the researcher will probably give way to some kind of status equal to that of the professor.

It is hard to predict the specific form that the status of researcher will take in the evolving university structure. Perhaps the recent rashes of appointments of persons to "research professorships" pre-

* A NORC study of the June, 1961 graduating classes of American universities and colleges indicates that one out of three seniors enter upon postgraduate studies immediately after completing the B.A. See James A. Davis, *Great Aspirations* (Chicago: The Aldine Press, 1964).

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sages the future position.* Or it may be the case that research institutes will develop into entities like departments, with complements of tenure positions to bestow. Whatever specific organizational forms will arise in the future in response to tensions I have described in this paper, one expectation will certainly be upheld: the American university will be profoundly affected by massive changes in the definition of the professorial role and perhaps even in the definition of the goals of the university community. Scientific activity apparently flourishes in the academic climate. I hope that the ecology of the academic community can support without radical alteration the rise to dominance of the species of scientific researcher.

* The University of Chicago has evolved a new status—Professorial Lecturer—to be held by persons with primarily research appointments who are so senior in accomplishment that they cannot be left out of the academic rank system. However, this new status does not involve the critical issue of assimilation of researchers into the university, their participation as voting members in departmental decisions.

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3. Gerald Holton, "Scientific Research and Scholarship," *Dædalus*, Spring, 1962.

4. Derek de Solla Price, *Big Science: Little Science* (New York: Columbia University Press, 1963), shows that the costs of research have been increasing exponentially in a wide variety of fields in response to a corresponding increase in the complexity of research endeavors.

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JEROME M. ZIEGLER

Continuing Education in the University

The Tradition of University Adult Education

HISTORICALLY, the purposes of the university in the United States have been teaching and research: informing the younger generations of the intellectual traditions and achievements of the past, helping students to understand the world they were about to enter as adults, preparing them for employment and civic responsibility, and pursuing new knowledge through research. To these tasks most universities in this century have added two others: developing educational courses and programs for adults, and providing a wide range of services to local, state and federal government and to other institutions and agencies in society. While the university is old, adult education has been largely a twentieth-century development. The trickle of adult students in the earliest decade of the 1900's has grown to many millions by 1964,* a change which parallels the growth in public school and university undergraduate education and which to a great extent is the result of the recognition our society increasingly has given to the uses and value of education in general. Adult education differs, however, from the public school and college and university institutions in the ways by which it has become established, in the purposes it serves and in the degree of public and governmental financial support it enjoys.

At the outset, we must make clear that one cannot speak of "adult education" as one can speak of the public elementary and high school program, and expect a common understanding of what

* The most recent and reliable estimate of the number of adults in some form of educational activity is that of the National Opinion Research Center of the University of Chicago. In a 1961–1962 survey, the NORC found that 28,770,000 persons were engaged in some kind of adult educational course or activity. See John W. C. Johnstone, *Volunteers for Learning: A Study of the Educational Pursuits of American Adults* (Chicago: National Opinion Research Center, University of Chicago, 1963).

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is meant by the term. For in addition to the variety of course content presented at many different intellectual levels and the range of activities which comprise adult education, this branch of education has been and continues to be conducted by a multitude of contrasting institutions and agencies, each proceeding according to its own plan or method. Adult education has not occurred in this country, as it has in some others, according to some overall purpose or special need,* nor has it developed functionally, as have the public schools, because of society's insistence that the populace must possess common understanding of a particular body of knowledge. A child can get his education in half a dozen public schools in as many different cities and the body of knowledge which is taught him remains much the same, whatever the differences in competence of teaching or method of presentation. Not so with adult education.

Consider what the term adult education now includes: the credit and non-credit or "informal" courses at all institutions of higher education open to adults; programs of the public schools, evening high schools and junior colleges; the secretarial and vocational work offered at commercial schools; the technical and management courses given by technical institutes and professional graduate schools as well as by business and industry themselves; the recreational and educational programs of social, civic, religious, fraternal, professional and public affairs organizations, associations and clubs; the religious education, public affairs forums and creative arts courses to be found in many churches and synagogues; the lectures, films, discussion groups, art fairs and music festivals offered by public libraries, museums and other civic institutions; the home demonstration and technical-agricultural work provided by the Cooperative (Agricultural) Extension Service; the courses offered by government agencies and the armed forces to government employees (and others); the field of community development; education by television; the commercial correspondence schools and home-study departments of many universities; and finally, the enormous and

* In Denmark, the Folk Highschool conceived by Bishop Grundtwig in the nineteenth century served a special purpose, which was early recognized by the state, of providing civic and cultural education for all those who had not completed earlier schooling, as well as for many adults who wished to improve their general educational background. The Danish State supported the Folk Highschool and gave it institutional form and status. Similar institutions for this kind of adult education developed in the other Scandinavian countries as the Folk Highschool's success was demonstrated in Denmark.

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increasing amount of independent self-study or self-education.

The variety, scope and magnitude of this enormous enterprise which we term adult education, including millions of adult students, hundreds of thousands of teachers and many thousands of sponsoring agencies or institutions makes almost impossible any attempt to discover order in this branch of our educational system. Adult education as a whole has grown in the six and one-half decades of this century without a comprehensive plan or theory, with very little articulation among its separate parts or divisions, and chiefly in response to individual or group needs made known at different times in different places. No doubt this was inevitable, given the pluralism of American society and the sheer size of our country. Nevertheless, we must take account of this general condition in describing what university adult education in particular has been, what it is today and what it may become.

Considerably more clarity can be found in the philosophy, purposes and programs of university adult education today than can be discerned in the field of adult education overall. This is not to say that university adult education is or is becoming a unitary system, but tendencies and trends of earlier years appear to be causing university evening colleges and university extension divisions to formulate common answers to common problems. The contemporary evening college and the university extension division are closer in purpose and educational program to each other than to other levels of adult education, and closer to each other today than they were in the years of their origins, the decades between 1890 and 1910. Until those years, adult education in any formal institutional sense was rather haphazard. Just before the turn of the century, educational opportunities for adults were scarce and rudimentary but beginning to be institutionalized in a manner that foretold the future.

In the nineteenth century, if adults wanted further education they had to get it by attending evening high schools for youth (and these only in the larger cities) or by enrolling in Farmers' Institutes or courses presented by the Chautauqua circuit or in institutions like the Cooper Union in New York or the Junto in Philadelphia. Churches, fraternal societies and labor organizations offered occasional lectures, and the high schools in eastern seacoast cities provided English lessons and "Americanization" for the foreign born. A few liberal arts colleges organized public lectures for adults to acquaint them with advances in science or to discuss religious or

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political topics of current interest. Colleges which offered vocational instruction to undergraduates in the form of agriculture or the mechanic arts occasionally permitted adults to participate. The passage of the Morrill Act in 1862, establishing the land-grant colleges, provided increased opportunities for undergraduates to enroll in technical or agricultural courses which much later were extended to adults. When the Cooperative Extension Service was established in 1914, working through the County Agricultural Agents in cooperation with the land-grant colleges, agricultural and technical education became available to adults in rural or semi-rural communities on a wide scale. It was not, however, until the development of the university extension system and the university evening college that adults in significant numbers began to use the resources of the institutions of higher education.[1]

The modern era of adult education may be said to have commenced during the final two decades of the nineteenth century and the first decade of the twentieth, when the idea of extension, conceived in England at Oxford and Cambridge, was adopted by American educators at Johns Hopkins, the University of Chicago, Harvard, Columbia and such land-grant institutions as the University of Wisconsin and the University of Minnesota.[2] President William Rainey Harper, the first president of the newly established University of Chicago, organized that university's extension division simultaneously with the founding of the university itself. The purpose of the University Extension Division was, in his words:

> To provide instruction for those who for social or economic reasons cannot attend in its classes is a legitimate and necessary part of the work of every university. To make no effort in this direction is to neglect a promising opportunity for building up the university itself, and at the same time to fall short of performing a duty which from the very necessities of the case is incumbent upon the University. It is conceded by all that certain intellectual work among the people at large is desirable; those who believe in the wide diffusion of knowledge regard it as necessary; all are pleased to see that it is demanded. This work, while it must be in a good sense popular, must also be systematic in form and scientific in spirit; and to be such it must be done under the direction of a university, that thus (1) there may be a proper guarantee of its quality; (2) character may be given it; (3) continuity may be assured; (4) suitable credit may be accorded.[3]

President Harper's Extension Division became the University College within a decade, to be followed by the establishment of similar

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university colleges or evening divisions within the growing number of municipal universities in the last decade of the nineteenth century and the first of the twentieth.

In 1906, President Charles Van Hise organized General Extension at the University of Wisconsin, commenting, in his now famous statement, that he wished to make "the boundaries of the University campus coterminous with the boundaries of the state." The central idea of this division was to serve all the people of the state with university level courses, not just those persons who, because of financial resources or geographic proximity, were able to enroll on the Madison campus. With the establishment in Wisconsin of classes off campus, which later developed into full-time extension centers, the concept of extension as a regular responsibility of the university took root and spread. Between 1906 and 1913, twenty-eight extension divisions were organized in other land-grant and private universities.[4] In 1915, the National University Extension Association was founded with twenty-two members; by 1960 the NUEA had one hundred and five members; and the Association of University Evening Colleges had one hundred and sixty members (many institutions belonging to both organizations).*[5]

Between the first and second world wars, three mechanisms of adult education through the universities reached mature form, each with a somewhat different philosophy and methodology: the university (general) extension system, the cooperative (agricultural) extension system, and the evening college. University extension took the university into far corners of the states and organized classes for adults or groups in an enormous variety of subjects, including credit and non-credit work. Cooperative extension, through the system of county agents, offered advice and technical assistance to farmers on the latest research and knowledge in agriculture, and instruction in home economics through home demonstration to rural families. The evening colleges, located in urban communities, provided for adults who were fully employed the opportunity to get an undergraduate or graduate degree at night and thus to complete a higher education which might have been interrupted or never

* In 1915, the Association of Urban Universities was organized as a result of a conference called by the Commissioner of Education in Washington the previous year to consider the problems of universities located in urban communities. Attended mainly by evening college deans and directors because adult education was an important and constant concern, these men formed their own organization, the Association of University Evening Colleges, in 1939.

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started. The evening college also offered adults who were not interested in acquiring a degree the chance to fulfill their intellectual interests by enrolling in various liberal arts courses. In more recent years, the evening college and the extension system have approached one another in basing their courses on the concept of service to an entire community, utilizing every device of instruction from the standard lecture and seminar for credit to the organization of "informal," meaning non-credit, conferences, workshops, special institutes and educational television. In the great urban communities such as New York City, Chicago, Cleveland, St. Louis and Los Angeles, the evening or extension divisions of New York University, the University of Chicago, Western Reserve, Washington University and UCLA respectively have organized classes throughout their entire metropolitan areas, including suburbs or separate towns and cities many miles distant from the downtown campus. In many other cities, such as Atlanta, Dayton, Toledo, Kansas City, Omaha, Oklahoma City, Denver and Portland to name but a small sample, the local institution or institutions of higher education have similarly extended their reach to the outskirts of their communities. Indeed, so rapid has been the development of adult education opportunities since the end of World War II that one could say almost no city of any appreciable size which possesses a city university (whether municipal or private) lacks a higher adult education facility. Many of the larger state universities, such as Rutgers, Wisconsin and California, in addition to operating a state-wide extension, have established evening colleges or centers either on campus or in other major cities of the state as in Newark, Milwaukee and San Francisco. Thus the evening colleges and the extension divisions often resemble each other in geographic area and in the kind of population served. This would appear to be inevitable as America's rural and semi-rural population diminishes. Nevertheless, the state-wide extension systems still preserve their state-wide function of serving citizens in all parts of the state, and institutions such as Pennsylvania State University and the universities of North Carolina, Oklahoma and California continue to organize classes in countless smaller cities and towns far removed from the central campus.

The Change from Adult to Continuing Education

Until about ten years ago, the education of mature persons or of

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persons who had at least finished high school was termed adult education. Educators and administrators by the use of this term meant to distinguish the education of adults from the formal schooling of earlier years. The term has been used to include the widest range of educational, recreational and hobby activities for anyone not in day-time public school. Arts and crafts, motor boating, bridge clubs, Bible discussion groups, chorus singing and orchestra playing, home nursing, vocational, technical and secretarial courses, evening high school or YM and YWCA courses and regular evening college and university extension degree work were and are all subsumed under adult education. With the enormous growth in the adult student body and the consequent expansion of facilities and opportunities, it was natural that college and university educators should seek for some definition of education for adults that would separate in the public mind what the university offered from what a fraternal, civic or community organization or association offered. But far more important than a wish for distinguishing phraseology was the change in concept of the education of adults which had been developing and maturing for many years and which gained common acceptance among college and university administrators by the middle 1950's.

The change in concept was from "adult education" to "continuing education." The new term expressed an understanding of education as a process—something different from the former notion of education compartmentalized into elementary school, high school, undergraduate and then graduate studies, with most people ending at high school or less, some people ending at the bachelor's degree and a few finishing with a graduate degree. The YM and YWCA's used the phrase "Lifelong Learning," which was also used in some evening college catalogues. Today many institutions of higher education have to use the phrase continuing education to describe their departments or divisions for adults; and with the establishment of Centers of Continuing Education at major universities such as Michigan State, Georgia, Oklahoma and Chicago, under grants from the Kellogg Foundation, and with the organization of Colleges of Continuing Education at the central campuses within state-wide extension systems, the students and the faculity, as well as the administrators, are beginning to think of education in a new and different way. It is recognized that adults, at different periods of their lives possessing different interests and different needs, require distinctive educational programs. There is a difference between the goals of undergraduate and graduate students and the goals of

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young adults in the years when they are securing their first jobs, getting married and becoming established. There is a difference between the educational needs of young adulthood and middle adulthood, the first being characterized by a concern for vocational and technical training which will assist in professional competency and job advancement, the second being characterized more perhaps by a desire to fulfill one's intellectual interests and creative impulses. There is also a difference between the educational needs of middle adulthood and old age, and between the ways men and women regard their own further education. The growing awareness of these differences by administrators and faculties has led to new types of courses, to a greater range of subject matter, to specialized approaches and to a new emphasis upon individual counseling and guidance for adult students.

The general concept that education should be a continuing process was understood in the nineteenth and early twentieth centuries as a part of broad educational philosophy—witness the views of Presidents Van Hise and Harper in this country, and Sir Richard Livingstone in England, or of Henry Adams and Bernard Berenson, who, although writing about education in entirely different contexts, gave us a fresh view of the unity between education and human existence. Such insights but rarely informed the practice of many university administrations until very recent years, when the influx of students, such changes in American society as greater mobility and leisure and the work of certain new national organizations concerned with the continuing liberal education of adults combined to change the traditional views of adult educators.* Large numbers of

* In the 1950's, the Fund for Adult Education was established as a separate, independent entity by the Ford Foundation. The Fund for Adult Education defined its task as one of stimulating and supporting liberal education and education in public affairs and public responsibility at all levels of the adult education movement, utilizing educational television—which was largely brought into existence by the Fund—the public school systems, colleges and universities, public libraries and a number of national organizations. See The Fund for Adult Education, *Advancing the Idea and Practice of Continuing Liberal Education, 1951–1961* (White Plains, 1962). During this period, several national organizations, which predated the Fund, such as the American Library Association, the American Foundation for Continuing Education and the Great Books Foundation, were supported by the Fund for the purpose of expanding their liberal education programs. In 1951, with financial assistance from the Fund, the Center for the Study of Liberal Education for Adults was established by the Committee on Liberal Education of the Association of University Evening Colleges. The Center has worked cooperatively for over a decade with both the

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new adult students demanding new courses in politics, the social sciences, philosophy and the arts and in natural and physical science, and not content with established teaching methods, gave educators the opportunity to experiment, to innovate, to develop new materials and new approaches. National organizations such as the Fund for Adult Education, the Center for the Study of Liberal Education for Adults and the American Foundation for Continuing Education brought new influences to bear upon the adult higher education structure. Study-discussion programs for small groups of mature students were organized on hundreds of college campuses through the country. Several hundreds of thousands of adults took advantage of these new opportunities to study world politics, American government, modern poetry, drama, literature, science, the Great Books and a host of other liberal subjects either on campus or in the extension and community centers, in public libraries or in their own homes. These adults, who were not interested in formal credit or working toward degrees, became a large new audience for the evening colleges and extension systems, an audience to which the institutions have continued to cater by developing highly interesting and unusual courses utilizing a combination of teaching methods: study discussion, lecture-discussion, residential weekend seminars and conferences.

At one time, university adult education for the most part meant providing in the evening college a replica of the undergraduate curriculum or taking that curriculum to people everywhere in the state through the general extension system. Cooperative extension introduced the methodology of home demonstrations, specialized conferences, workshops and short courses which, excepting home demonstrations because inapplicable, were duplicated and emulated by university extension. But for a majority of institutions, adult education implied either degree work and credit courses or vocational courses in a technical or professional field. As we have said, university extension grew up, so to speak, in the philosophy of service to all the people of the state. Therefore, individuals and groups within a state looked to the university for instruction in all

Association of University Evening Colleges and the National University Extension Association to assist their members in experimenting with and expanding liberal education courses. The American Foundation for Continuing Education also worked during this same period of time with over three hundred colleges, universities and junior colleges to develop discussion groups for adults in politics, economics, cultural anthropology, the arts and science.

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manner of vocational and specialized courses. Business, agricultural, trade union groups, women's organizations such as a state federation of women's clubs, and professional associations of all kinds requested and received faculty instruction and assistance in the areas of their special interests. As the population and its needs increased, the extension systems became heavily involved in meeting its requests, often using part-time or special instructors and organizing courses upon demand, perhaps in the process of running a wide-flung operation becoming somewhat detached from the central campus faculty. Where this occurred, and where university extension doubled and trebled its size, as happened often enough at the large state universities in the decade after the Second World War, a certain division and even hostility developed between academic and professional departments and the extension system. Faculty critics would characterize university adult education as an educational cafeteria, being all things to all people, essentially uncontrolled by the same standards of academic excellence which presumably governed undergraduate and graduate education.[6] At the same time, although this feeling of separation between the adult divisions and the academic departments and professional schools did exist and still exists, deans and directors of adult or continuing education have worked assiduously to cultivate close relations with all branches of the university, relying more and more on the regular faculty to teach their adult courses.

The developing concept of continuing education has in turn brought about an emphasis upon liberal education for adults, in contrast to vocational or professional training and education, which for many years comprised the standard offerings of most evening divisions. The current catalogues of the University of California, Berkeley campus, or of New York University, for example, provide a remarkable selection of liberal education courses, both credit and non-credit, as well as a large choice of vocational and technical courses. In California, during the spring or summer of 1964, one could enroll in the following special programs: The Negro Writer in the United States, a five-day residential conference; The Shakespeare Quadricentennial Lectures and a Shakespeare Weekend; Mysticism and Psychotherapy, a weekend conference; New Images, American Painting Since 1946, a series of six lectures; Wilson and Lenin, Heritage of Four Decades, a series of lectures; The Ocean, a lecture series and summer field program; J. S. Bach, The Well-Tempered Clavier, six Saturday workshops; Understanding and

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Educating the Emotionally Disturbed Child, a lecture/discussion program. Or one could enroll in any of twenty new credit classes or ten non-credit classes in such diverse subjects as Introduction to General Astronomy, Elementary Latin, The British and French Legacy in Independent Africa or Issues in Municipal Administration. If one wished to enroll for credit in the department of Anthropology, one could choose from among eight courses; in Art and Architecture from among seventeen; in Psychology from among eleven. The courses offered by university extension administered from the Berkeley campus are given not only on campus or at the San Francisco center but at thirty-five locations throughout the northern half of the state, the southern half being so covered by university extension at UCLA.

At New York University in the Division of General Education and Extension Services, one finds courses during the summer session in the liberal arts, the management institute, foreign languages, college preparatory (to prepare students for college entrance, daytime or evening, in English, French, arithmetic, algebra, geometry, trigonometry, government and sociology), the American Language Institute, the Reading Institute, the Testing and Advisement Center, the Center for Safety Education and a Summer Workshop in Television and Radio. The Liberal Arts in Extension program offers study-discussion, lecture and workshop courses in all five boroughs of New York City and in Long Island, Westchester and in New Jersey in the fine arts, literature, economics and political science, psychology and religion, international affairs, investing, foreign languages and science. At the Division of General Education, in addition to liberal arts and sciences, one could study book publishing, 11 courses; advertising, 5 courses; electronic and punched-card data processing systems, 16 courses; business, including finance, purchasing, marketing, personnel management and industrial relations and advanced management programs, 34 courses. In foreign languages, a student could enroll in any one of nineteen courses, including Korean, Swahili, Indonesian, Turkish, Japanese, Chinese, Hebrew, Arabic, Urdu and Hindi in addition to European languages.

In short, at leading institutions such as the University of California and New York University, one can find an enormous range and variety of subject matter including highly specialized and even esoteric courses. But at only a dozen or two universities across the nation is such a variety offered. The rest are far more limited either

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because of smaller, less specialized faculties or because the adult student population cannot support a larger program.

Perhaps the most interesting development in continuing education within the past ten years has been the emergence of "special degree" programs for adults who cannot enroll in the regular day or evening college—that is, special programs for acquiring the traditional bachelor's degrees. These special degree programs differ from the traditional ones in entrance and course requirements, arrangement of subject matter and the ability of adult students to proceed at their own pace. All of them take into consideration the life experience of adults, giving credit for previous learning or experience in particular fields. Special degree programs are in operation at Brooklyn College (the oldest, having commenced in 1953), Queens and Goddard Colleges, Syracuse University, the University of Oklahoma, and Johns Hopkins; and at San Francisco Theological Seminary an in-service professional degree program has been organized for practicing ministers.[7] At all the institutions except the theological seminary, the emphasis is upon broad liberal arts courses and interdisciplinary seminars, plus a large amount of independent study. At the University of Oklahoma, a Bachelor of Liberal Studies program has been prepared which combines a high degree of individual counseling for accurate placement, independent study, discussion-seminar groups on and off campus, residential weekend conferences and seminars, auditing regular day or evening classes, correspondence study and study through educational radio or television programs.[8] This is more than a simple adaptation of undergraduate courses, and it represents a university's creative attempt to deal with a new kind of student in a new type of situation.

Although the movement in the direction of continuing liberal education has been accelerated during the past decade as university adult educators have become more responsive to the interests and needs of the large number of new students and as the national organizations provided opportunities for experimentation and innovation, the bulk of adult education has remained in traditional molds and patterns with a high concentration on credit, vocational and technical courses. Adult educators are re-evaluating their programs and methods of instruction, but perhaps not rapidly enough for the needs of the times. Given the kinds of change which have occurred in American society—the explosion of all knowledge, the increase in population, the high rate of mobility among a large and growing middle class, a shortened work week accompanied by

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amounts of leisure time inconceivable to older generations, the revolution in industrial production achieved through automation/cybernation, the rise in expectations of Negroes and other minority groups for better jobs and living conditions, the phenomenon of urbanism or "Megalopolis" as a determinant of culture—it is necessary for university adult educators, the faculties and the senior administrative officers to reassess the role and place of adult or continuing education in their institutions. Deans and directors of continuing education must continue to ask with fresh urgency the questions of perennial interest: How extensive should extension be? What are its geographic and subject matter limits? Should courses be offered for adult students who would not, lacking previous education or achievement, normally be regarded as meeting university standards? Should the adult divisions become engaged in non-course projects such as workshops or conferences for special interest groups which might better or as easily be conducted elsewhere? Should adult students be subject to different course and degree requirements than prevail elsewhere in the university? Should the needs of society be the touchstone for organizing curricula instead of or in addition to the interests of individuals?

These questions may be broadened by asking, as many leaders in the field have asked, what is the proper role of the university in the field of continuing education for adults. What is the university equipped to accomplish that other institutions cannot accomplish? What leadership can the universities provide to the other educational instutions which are themselves grappling with difficult problems of educating the present generation of adults? What are the great and profound problems of contemporary civilization to which the university must make a special contribution through the use of its unique intellectual resources?

The Adult Student Body and the University's Responsibility for Educating It

Before considering the questions posed in the previous section, a word should be said regarding the composition and motivation of the current adult student body and the issue of defining the university's responsibility toward the education of this student body. The adult clientele for continuing education is today the largest, the wealthiest and already the best educated in our history. Estimates vary of the number of people who are returning to some form of

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activity broadly classified as educational from almost fifty million to just under thirty million. The NORC study[9] showed almost thirty million persons engaged in "educational pursuits," according to the classification in the following table:

Subjects	*Estimated Number of Persons*
1. Job-related subjects and skills	9,020,000
2. Hobbies and recreation	5,470,000
3. Religion, Morals and Ethics	3,820,000
4. General education subjects	3,500,000
5. Home and family life	3,440,000
6. Personal development	1,777,000
7. Current events, public affairs and citizenship	1,080,000
8. Agriculture	320,000
9. Miscellaneous	970,000

Of this number, we may note that 3,260,000 are attending classes in churches and synagogues, 2,640,000 are attending classes in colleges or universities and 8,000,000 are engaged in independent study.[10]

According to the NORC study, the categories of subject matter offered by the universities and colleges were divided:[11]

General Education	38%
Vocational	39%
Agriculture	1%
Hobbies/recreation	6%
Home and family life	3%
Personal development	6%
Religion	1%
Public affairs	4%
All other	2%

General education in these institutions included foreign languages, mathematics and statistics, English literature and composition (excluding speech and basic English for immigrants), history, sciences, psychology, social sciences, great books and public affairs (political education).

Regarding the motivation for adult learning, it appears that adults enroll in school or college courses because of (1) a monetary or vocational incentive, (2) a desire to remedy a lack or a gap in earlier schooling, (3) individual intellectual curiosity and (4) a wish to use new-found leisure in a meaningful way or because of the need to find recreation outside the home and ordinary, daily social relationships. The vocational incentive is the direct result of job mobility and the common desire to earn more money. Since job

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mobility has become a major characteristic of American business and industry, millions of adults have become involved in vocational re-education or training, and hundreds of educational institutions have seen an opportunity not only to provide a certain service to business but to earn needed income themselves. Most university institutions have made a considerable investment in vocational/technical education in order to meet the desires of adult students for these types of courses, and there is little doubt, looking at the figures in the NORC study, that vocational education is what at least 40 per cent of the adult students who attend universities want.

It is obvious that many students enroll in extension or evening college for a combination of reasons. Intellectual curiosity and using leisure time productively are two which have become more important as more adults pass through undergraduate and graduate education, and as almost all adults gain more free time from job or home responsibilities. Perhaps not surprising but gratifying is the tendency of those who already possess good education to want more of it. This places a responsibility upon the universities for discovering and creating the kind of education which best meets both the needs of individual students and the needs of society. However, adult educators are confronted with a very difficult issue when they provide courses and instruction which attempt to do both—because, as we all know, the wants of individuals and the needs of society are not always identical.

It is evident that general education subjects, or liberal arts broadly defined, are chosen by a minority of all people in adult education and that even in the universities they are less well attended than are vocational and recreational subjects. The small number of persons in public affairs courses bears out the contention of Dr. Ralph Tyler, among others, that adults avoid the study of critical issues. Educational institutions tend to offer what the average adult student prefers—"popular" subjects often devoid of worthy intellectual content and without any true connection to the needs of society. (This may not appear evident given the examples of adult courses noted earlier, but we must remember that most institutions do not offer such a heavy concentration in the liberal arts.) There is a disparity between what adults do study and what they ought to study in view of the political-social-economic needs of their communities and of society as a whole.

To repeat, this conflict poses a very serious challenge to the administrator who wants to exercise leadership, who wants to innovate

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and to be imaginative, yet who must meet other educational and budgetary responsibilities in accordance with the interests of the particular student body attending his institution. One might well ask who is the university administrator that he can determine the "needs of society" as against the desires and "needs" of individuals? No sensitive administrator would wish to arrogate to himself or even to his faculty colleagues omniscience in this matter. Yet every decision to include a particular course in the university catalogue and to exclude another is a decision based on a conscious or unconscious estimate of contending factors: what the adult student wants, what the univeristy is prepared to teach, what the university ought to be doing in the translation of new knowledge produced through its faculty's research into courses of instruction for adults: in short, how to make social and scientific research meaningful to society, and how to assure sufficient income to the evening college or extension division so that it can continue. Always, the university administrator has the responsibility of making value judgments about the intellectual quality and direction of the courses offered while weighing the various factors affecting this issue. He must find his own answers to the questions his leading colleagues in the field have been asking, to which we referred earlier: what is the proper role of the institution of higher learning in the education of adults, what can the university do which other institutions cannot do or cannot do as well, and how can the university best contribute to the solution of the complex, difficult problems besetting individuals and society?

Liberal Arts and the Future of Continuing Education

Developed for the education of younger generations, the university stands today as the most important focus for the education of adults. What the university does for its undergraduates and students in its professional schools, it can also do for its adult students: provide a sound, comprehensive liberal arts and science curriculum, followed by intensive professional training for those who seek graduate studies. For the university is unique; it combines qualities and resources not found in other institutions. There are many other organizations which can provide the entertaining, recreational, hobby courses which adults want; there are other levels of the formal educational structure, such as junior colleges and technical institutes, which can offer a great deal of the technical/vocational

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work for the improvement of skills so much in demand by adults who wish to progress in their jobs. Business and industry increasingly train their own employees, thereby reducing the necessity for higher education to undertake more work in that area. One does not demean these activities by saying that few of them belong in a university catalogue. The university has a very special function to perform: offering to adults of intellectual competence the means to increase their knowledge of truly important subjects, to study the critical problems of our time, to participate in the search for new knowledge and to develop the habit of self-education. The university should not allow itself to be diverted from what it can do best by the pressure of business, industrial and agricultural interests, or by any other group, or by the promise of earning income or by the need for good public relations.

Why is the study of the liberal arts and sciences so important in the continuing education of adults? Most thoughtful persons would agree that it is through the study of these subjects that men most nearly approach a proper understanding and appreciation of the great questions which all men in all ages have confronted. It is through the study of the liberal arts that man can understand himself, and it is through the study of the liberal arts that one develops the necessary insights into the nature of contemporary problems and issues, solutions to which we all seek, reaching toward a more perfect society and civilization. The technical questions are very important in our day: how to build a bridge or a highway system, how to develop a nuclear power system for efficient, economical civilian use, how to desalinate the oceans, how to fit an artificial valve into the human heart, how to use computers and electronic data-processing. But the nontechnical questions of purpose, of means and ends, of human aspirations, of making government responsive to the needs and desires of populations, of where to plan new cities, of social and intergroup relations, of the place of beauty and art and nature in the lives of individual men and women—these questions are no less important.

To some extent the distinction between technical and nontechnical is artificial, and adults who choose a field of endeavor in either category require from their undergraduate, professional and adult education much the same kind of knowledge and insight. In any subject, one needs to master the available information. But one needs more. As Whitehead said, "Your learning is useless to you till you have lost your textbooks, burnt your lecture notes, and for-

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gotten the minutiae which you learnt by heart for the examination. What, in the way of detail, you continually require will stick in your memory as obvious facts like the sun and moon; and what you casually require can be looked up in any work of reference. The function of a University is to enable you to shed details in favor of principles."[12] Continuing liberal education for adults at the university level does and should fulfill that function.

In the coming years, for the university to provide a stronger and sounder liberal curriculum to adult students, a conscious act of policy will be necessary by the university's administration and faculty. Senior administrative officers and boards of trustees of the universities will need to make clear the co-equal status of the evening college or the extension division with every other department of the institution. As Dr. Ralph Tyler has pointed out, raising the status of the extension division within the university, giving it more financial support and involving the resident faculty more deeply are three critically important factors affecting the future of university adult education.[13] Two other elements are equally important, the training of teachers of adult students and research into the learning processes of adults—elements to which Professor Cyril O. Houle of the University of Chicago has given particular attention.

Research into the motivation of adult students and research on how adults at different ages and from different backgrounds learn are highly interesting questions to which adult educators are more and more devoting their time. We can visualize the useful results we may obtain from that kind of research when we recall that almost three million adult students attend at the university level, and eight million persons are engaged in self-education. How the university may serve its present constituency better and how it may develop ways of attracting to its classes some of the eight million are matters about which present research will hopefully yield new clues and insights. For example, we should understand better than we now do the psychological effects of physiological change and of aging. We should know more about the relationship of emotional stability to the constructive use of leisure and of early retirement which increasing numbers of adults are experiencing, and the effects of these factors upon the adult's ability to learn. The interconnections between occupation and leisure time, and the motivation, intellectual curiosity, temperament and age of adults comprise a whole new area for research important to the future development and direction of continuing education by the university. What we

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do with our leisure now when most of us are fully employed is one question; what we shall do with it when all of us are underemployed by today's work standards, or when we are finished with employment and enjoying early retirement, is quite another question. We need new testing and guidance procedures in order that mature students understand themselves better and understand how to make the best use of the university's resources. Adult counseling services are currently being conducted by the leading universities. These should be expanded and extended, for it is only by acquiring knowledge of its adult student body that the university can shape its curriculum and services to meet new needs and demands.

A broad research effort is needed, then, at the university level into the nature of adults, adult learning and leisure. By strengthening the extremely useful work that has been done in the past few years, the university and its department of continuing education can take full advantage of the remarkable opportunity which will be theirs in the coming decades to educate this fast-growing, diversified, highly motivated student body of mature men and women.

In contemplating what the future directions of university adult education may be we can forecast an ever increasing student body that will continue to strain the institutions' resources. Also the demands made upon the university by a host of organizations, groups and government agencies cannot be expected to lessen. Thus the universities will probably be forced to choose among the claims for its adult and continuing education services until such time as the level of public financial support increases, enough buildings are constructed and enough teachers are available to accommodate all the demands. In making its choices, if present trends continue, university administrators will emphasize the values of the liberal curriculum in contrast to the vocational, and they will concentrate upon the advanced training needed in the older and in so many of the newer professions.

The interdisciplinary approach to learning which has characterized undergraduate education will be found increasingly in the adult curriculum. For example, several leading institutions are developing Centers for Urban Studies or Institutes of Urban Planning where adults working in the relevant fields may take advanced training in the disciplines of economics, statistics, politics, psychology, anthropology, physical geography, city planning, architecture, industrial engineering and meterology. The subject of urbanism is no doubt one to which increasing numbers of adults in

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various professions as well as undergraduates will be attracted. Within it are subsumed some of the most difficult and challenging problems facing our country—relations between Negroes and whites, the improvement of public education, the development of a stable tax base, the provision of city services on a metropolitan basis, increasing recreational and cultural opportunities, and revitalizing democratic citizenship participation. Institutions of higher education have a great role to play in this regard both in training professionals and in increasing the understanding of the general adult population. Greater emphasis upon the teaching of international affairs and world politics is also to be expected as more Americans become interested in these matters, as more citizens travel abroad for business or pleasure and as both our own and foreign governments turn to the universities for technical and professional assistance.

These are but two of the many ways in which the leading universities in their adult programs are recognizing their responsibilities and opportunities to utilize their resources in the education of mature men and women who are concerned with social and political issues. At the same time, the university will continue to meet the intellectual and creative interests of individuals by expanding the liberal curriculum, by offering special degree programs and by giving adults new opportunities to explore deeply and widely in diverse fields of subject matter. The liberally educated man is no less a goal for adult educators than it is for those in charge of undergraduate education. The words of the report on *General Education in School and College*[14] published twelve years ago stand today, as they did then, as an expression of the hope and ideal for which educators strive in every part of the total educational system. "A liberally-educated man demands freedom. . . . We call those studies *liberal* . . . which are worthy of a free man . . . and of a free society. . . . Liberal education and the democratic ideal are related to each other in a thousand ways. It is not too much to say that they stand and fall together."

Thus the adult and continuing education departments of the universities are forming their programs on the fundamental needs of individuals and of society, needs which are becoming more congruent as their interrelation is more clearly perceived. Programs in the humanities for businessmen and scientists, in the social sciences for trade union leaders, in the natural sciences for nonscientists are signs pointing to the development of continuing education

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as a coherent and mature enterprise, taking the serious-minded person at whatever point he concluded his earlier formal education and giving him both the broad general knowledge and the professional training he needs to achieve his potential as a worker, parent and individual. We may anticipate a great expansion of liberal education programs for such special audiences as women graduates, teachers, people in the health professions, senior civil servants, indeed for people in many new professions or families of jobs that are yet to be created by technologies unknown at the present time. For the university recognizes society's continuing need for the liberally educated man as well as its need for the competent specialist who has mastered a complex field of knowledge. More and more, the university will try to provide both kinds of knowledge to the same individuals, the persons who by virtue of their education, talents and experience are the managers of contemporary society.

Robert Redfield once described education as exploration, conversation and creation. "Education," he said, "is of course learning something. More importantly, it is becoming something. Although knowledge is needed for education, an educated person is not the same as a man who has knowledge. If we learn things that become parts of us, if we make efforts to develop our own particular understanding of life and of the order of life's goods, it is education that we are doing. A person is something that it takes time to make; there is on everyone an invisible sign, 'Work in progress'; and the considered effort to get along with the work is education."[15]

The work in progress is what happens when an adult returns to the university. We may suppose that such a return can be and often is a critical turning point in his life. Far from treating lightly or mechanically any adult enrollment, the university faculty and administration welcomes and seizes the chance to offer our generations of adults the means for solving the great problems of our age and for attaining the highest degree of self-development of which we are capable.

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PAUL WEISS

Science in the University

THE great tides of change which have swept over the academic world, as over all our world, have moved familiar landmarks, submerged inhabited ground, and thrown up new islands to be explored. New fields of inquiry have emerged, old fields of inquiry face new problems, vast public support is thrown behind certain lines of endeavor, and other lines receive diminished attention. It is not surprising that this continuing process of change has produced in us a habitual attitude of re-examination and reappraisal of our goals, our assumptions, our values, and the distribution of our efforts. And, since the academic world is nothing if not articulate, this re-examination involves a great clamor of voices. Forward-looking men, who have foreseen the emerging patterns and find significance in them, welcome the changes; but at their side are the faddists and the opportunists and the unstable folk who would welcome and exploit *any* change. Sober and judicious men, who see the losses that come with tumultuous change, regret the breaks in continuity and the washing out of old landmarks; but at their side are the inert and the timid and the self-interested who would resist and condemn any changes.

Carnegie Corporation of New York, Annual Report, 1952, p. 13

Because we are struggling to meet this multiplicity of rapidly changing aims through continual alterations in our educational system, it is perhaps not surprising that our educational world is in a continual ferment. But this ferment, though it is far-reaching, does not necessarily mean chaos. A modern and rapidly changing society inevitably must have a diverse and a rapidly changing educational system. Our society will be shocked from time to time by unexpected and startling events throughout the world. Such events may

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stimulate us to re-examine our educational procedures. But we cannot amend our educational system overnight, or suddenly remove our educational deficiencies. Our system must be kept on an even keel, our educational goals must be kept clear; we need to work steadily and not impulsively, constantly to improve our system and to accept change as inevitable and desirable.
Education for the Age of Science. Statement by the President's Science Advisory Committe: The White House, May 1959

Preamble

SCIENCE has burst upon the stage of modern life with more aplomb than foresight, and the universities must face and come to terms with the precipitous changes that this so-called "scientific explosion" impresses on our culture if they wish to retain their claim to leadership in cultural evolution rather than accept the passive role of drifters in the wake of wholly extraneous trends. To examine the growing impact of science on the universities is a timely and urgent undertaking; it should, indeed, be made a continuous process. There are two sides to the problem. The university must find ways to keep accommodating the legitimate expansive claims of science, but at the same time it must protect itself against disproportionate expansion of the scientific sectors beyond the stress limit at which the very ideal of a university as a cohesive body would collapse. These matters have been and are being widely and often wisely discussed in many quarters.[1] The only possible excuse for my reverting to the subject may be that it has not before been stated in quite this same context. There is perhaps the further point that my own educational experience has been sufficiently diverse to inure me to the spirit of partisanship which often has marred the treatment of these issues.* I therefore with some trepidation accepted this challenging assignment, more with the aim to state the case than to prejudge it.

From the manner in which the case of "science and the univer-

* By way of credentials, I may mention my dual academic training in engineering and biology; directorship of the interdisciplinary Master's Program of the Division of the Biological Sciences of the University of Chicago; Chairmanship of the Division of Biology and Agriculture of the National Research Council; Chairmanship of the Biology Council; Educational Policy Committee, National Academy of Sciences; Committee on Education, International Union of Biological Sciences; 42 years of teaching and research in many universities in U.S.A. and abroad; membership on many national and international research and advisory boards, etc.

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sity" is often stated within and without the academic precincts, one almost gets the impression of adversaries in court or of competitors in trade, of challengers from hostile camps. And C. P. Snow's widely heralded schism between "The Two Cultures" has added its share of exacerbation to the argument. It is deplorable that so much of the debate, on which weighty decisions and actions hinge, should be carried on in a spirit of doctrinary antagonism, with myopic concentration on extreme aspects of what in truth is, or ought to be, despite diverse facets and graded scales, an integral continuum—man's quest for knowledge.

By contrast, my main object in this essay will be to expound the proposition that the issue of "science in the university," together with all its subissues, in order to be resolvable, must be removed from the arena of conflicting intellectual contentions. We ought not act like umpires in a game of win or lose. The more one poses the issues in terms of mutually exclusive alternatives and looks for universal master keys to their solution, the further away one actually gets from any prospect of realistic resolution. Attempts at categorical solutions—the symptoms of administrative expediency—are doomed to failure.

For instance, the question of whether the universities should expand or contract their scientific engagements cannot be resolved in simple quantitative terms. A quota system is hardly applicable to any branch of learning. The issue is complex, and the only fruitful manner of approaching it is by untangling its intricacy, bringing the full diversity of its many detailed components into view, and shaping from them, after re-evaluation, programs sufficiently elastic to meet the unprecedented opportunities for growth, as well as the resultant stresses, that lie ahead. That is what I mean by "stating the case." It is to be largely an act of anamnesis and diagnosis, to which I shall append only a brief prognosis for therapy.

Yet I must emphasize that I am speaking in a strictly personal capacity. No one scientist can any longer claim the authority to act as spokesman for the whole of science. A "scientist" today is basically a worker in some branch of science. He may be broad or narrow in outlook and experience. But unlike the days when science was the province of natural philosophers of wide perspective, the modern ascendency of technical specialists in science has given rise to such a large spectrum of sectarian opinions of what science is or ought to be that no one, however broad-minded, can any longer be acceptable as representative for all of them. So this will be my private assessment of the situation. Like everyone else, I can do nothing about my con-

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genital blind spots. However, I shall at least try to take off those self-imposed blinders which workers in and out of science like to wear—creative minds, for better concentration and efficiency, and less creative ones, for the security of intellectual seclusion. I shall proceed by sampling a few specific issues bearing on the general topic, with no illusion or pretense that my arguments are absolutely valid. Furthermore, I would stress that I am not addressing myself to my scientific colleagues, who are familiar with the issues and who know the arguments, but rather to the academic community at large, and even more broadly to the public, which is the prime beneficiary and, in the last analysis, benefactor of academic institutions.

Quite naturally, a sampling procedure of "Science in the University" must start from a clarification of our terms of reference. Just what are we talking about when we speak of "science" and when we speak of "the university"? After all, we are to deal with real institutions, not just with ideals or allegories.

What Is "Science"?

A search of laboratories or libraries for a representative and comprehensive miniature sample of "science," true, pure, and simple, would come to naught. The term is an abstraction. It simply signifies a collective operation of mankind in which countless different efforts and aptitudes are brought to bear conjointly on those aspects of knowledge that deal with nature. Its basic motivation is man's curiosity, his wish to learn and know, accentuated by his practical experience that benefits are to be reaped from knowledge.

The quest for knowledge of itself is good, regardless of the uses men make of their knowledge, wise or foolish. Although only that part of knowledge which lends itself to verification or negation by the evidence of observation, experiment, and measurement is the legitimate province of natural science,[2] the land within those borders is so immense and variegated that no separate fraction of it can be taken to portray science truthfully. One-sided portrayals of science as either the exalted search for absolute truth or as a mundane preoccupation with practical results and products are symptoms of narrowly restricted vision, perceiving only limited absorption bands from the broad total spectrum covered by science. In consequence the man of practical affairs more often than not tends to identify science with technology, whereas the academic purist conversely prefers to exclude from his definition of science all its practical ap-

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plications in agriculture, engineering, medicine, statistics, and so forth.

However uninformed and short-sighted such distinctions may seem, there is no glossing over their widespread use and uncritical acceptance. The staggering internal diversity of science is not generally appreciated. Since this is surely not the occasion to list the multitude of diverse activities included in science, let me quote a passage from an earlier attempt I made to illustrate the point for my own field of biology.

> Biologists, in the sense of miniature incarnations of universal biological knowledge, no longer exist. Biological science has become a group enterprise with many servants in varied stations. . . . Anyone contributing to this collective task constructively, competently, and conscientiously, thus becomes a biologist. Consequently, it takes all kinds of biologists to make the biological world, none of them able to carry on without the others. And biology needs their full diversity.
>
> It needs the observer, the gatherer of facts, the experimenter, the statistician, the theorist, the classifier, the technical expert, the interpreter, the critic, the teacher, the writer. It needs the student of evolutionary history as much as it does the experimental physiologist; the precise recorder of morphological data as much as the analytical biophysicist and biochemist; the investigator of molecular interactions as much as the student of supramolecular organization, of the order of events in space and time. It needs the help of all hands at all stations. They all work for a common cause and should feel above the unjustified and undignified popularity contests that center on such monomaniac questions as who is more important, the fundamental or the applied scientist; the explorer or the instructor; the technical expert or the philosopher.[3]

If it seems impossible to find a unified formula even for a section of science like biology, how much further from reality is the notion that science as a whole is uniform and can be treated as a single simple entity. The university could help to combat this notion by ceasing to lump all "science" into a membrane-bound homogenate. This, of course, might lead to an administrative monstrosity, but it would at least engender a more balanced overview of what "science" in the university really means by stressing the enormous differences in kind, composition, and maturity of the different constituents of that "scientific" compartment, as widely disparate in their requirements of aptitudes and facilities as theoretical physics and descriptive botany; on the other hand, it would also blur the demarcation line between science and the humanities by recognizing their blending in philosophy, history, and even art.

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I leave for later the question of how far the university is committed and how far it can afford to go in catering to this vast array of tributaries and ramifications of science without becoming what Robert Hutchins referred to as an "academic service station." For the moment, I rather raise the sights upwards to a feature of science which deserves special emphasis in the present context. It lies in the spiritual values imparted to those who share in its pursuit. That spirit of science, more than any specific training, is a most powerful ingredient of education, if education is defined with Corner as "preparation for effective living."[4] As I once put it:

> Its power stems from the strict mental discipline and critical detachment that it imparts to those who live and practice by its code. . . .
>
> Now, just what is it that marks this spirit as superior to the mere application of logic, the Golden Rule, or just plain common sense? The answer is: the categorical demand for validation and verification of each premise, each contention, and each conclusion by the most rigorous and critical tests of evidence. Every rule and law has to be tested and enforced, and nowhere else is the penalty for error or infringement so prompt and telling. . . . Thus by reward and punishment, the scientific method teaches man to discipline his thinking and his actions based on thought.
>
> This discipline of the scientific method, broadly applied, can go far toward clearing the underbrush of superstition and prejudice that hampers civilization in its march. By its incisiveness, the scientific spirit will leave its mark wherever men strive to overcome obscurity and obscurantism.
>
> But it has limitations. According to the code of science, no positive assertions are final. All propositions are approximations, and indeed are provisional pending conclusive proof that all alternative propositions are untenable. Viewed in this light, science is seen to advance more by denying what is wrong than by asserting what is right—and by reducing, and eventually eradicating, errors, rather than by heading straight toward some preconceived final truth. . . . It is a sobering experience for the scientist thus to acknowledge the finite boundaries of his reach. It takes humility and courage to live with partial answers, and it disturbs complacency. Yet, if this critical scientific spirit can cure more men of their cocksureness that they already know the answers to questions yet unsolved, then science will have given man a new resolve to search and strive again, not just conform; to face his problems, not accept pat solutions; to exercise his ingenuity, instead of dully abdicating to authority. The scientific spirit will thus rekindle flames which one of science's products—mechanization—threatens to smother.[5]

Why then is there so little prominence given to this crucial role of science in education? Why have so few in the academic population been made aware of the broad cultural aspects of science? The fail-

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ure constitutes a black mark not for science but for the faulty manner in which it is customarily taught.

While I dissent explicitly with the antithesis of "Two Cultures"—one scientific and the other humanistic—I cannot ignore the fact that party lines have been drawn along those artificial distinctions. "Liberal education" *versus* "scientific training" is turning from a slogan into a battlecry. Were both sides only to learn more about each other, the misconceptions and perverted meanings might readily subside. Of course there is a marked asymmetry to be corrected; for whereas scientists by and large respect the cultural mission of the humanities, the humanistic values and social virtues of science, in contrast to its utilitarian aspects, are rarely appreciated in the other camp. The lack of symmetry in mutual relations between scientists and non-scientists, which forms the core of C. P. Snow's argument, is an indisputable fact. As a result the profound relevance of science to education is still widely underrated. But since this is based, it seems, on sheer lack of acquaintance rather than on misjudgment, there is hope for remedial action.

It will have been plain from this discussion that I rate science, properly presented, as a major rather than an auxiliary component of "Liberal Education." Here is further supporting testimony:

> No one discipline or combination of disciplines provides the unique avenue to the liberation of the mind. The natural sciences—in the first flush of enthusiasm—once thought that they had the golden key to enlightenment, but sensible scientists no longer make this assertion. On the other hand, thoughtful people will find just as ridiculous the currently fashionable characterization of the physical and biological sciences as almost the antithesis of a liberal education—fit only to produce soulless technicians, illiterate in philosophy, innocent of moral values, and strangers to the creative life of the mind and spirit. The physical and biological sciences provide as great play for the creative spirit as do the literary fields. There are as many technicians-without-values in the fine arts as in the sciences. The intellectual climate in which we live has been fashioned in no small part by the physical and biological sciences, and no educated man can ignore their contributions, nor indeed frame a philosophy without them.[6]

So much for the role of science in general education. The reciprocal contributions of a liberal education to the making of a good *scientist** have been stressed so often and so convincingly that it

* I am using the term here in its more exalted sense, as defined, for instance, in the statement by the President's Science Advisory Committee on "Scientific Progress, the Universities, and the Federal Government" (The

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would seem superfluous to labor them once again. Two aspects, however, call for comment. The first is that it seems unnecessary to single out the scientist as specially benefiting from a broad liberal education, the chief aim of which is, after all, to turn out educated, responsible, and judicious citizens in general. The second aspect, which has two facets, presents greater problems. It raises the old question of the optimum ratio between the irreducible common denominator of a general education ("for effective living") for all professionals, including the prospective workers in any branch of science, and the essential requirements for professional preparation ("for greatest effectiveness in one's chosen occupation"). But it also raises the new question, emerging with the growth in volume of science, whether that optimum is alike for everyone going into science. Is it the same for those who are destined by unusual aptitude, vision, aspirations, dedication, and courage to approximate the ideal of all-around "scientists," capable of promoting knowledge by steps of telling significance, as it is for the ever growing proportion of those who neither desire nor would be qualified for such an august station, but who are content to execute competently tasks of limited scope, as partners in that glorious campaign for human betterment that goes by the collective term of "science"?

Again we have before us a graded scale rather than sharp categories. Nevertheless, however arbitrarily the dividing line may be set, the process of differentiation of tasks in our society has reached the stage where corresponding differentiations in the schools preparing for those tasks becomes unavoidable—in the case of science, moreover, requiring further adaptation to the heterogeneity within the field itself. The voices advocating earlier specialization among science students are growing louder; but so are the counterclaims for keeping higher education unified through at least the early years of graduate school. It surely would be disastrous if one were to allow the branching points to be determined by power equilibria between vocational empiricists on the one side and academic purists on the other.

There are auspicious beginnings of a penetrating general discussion of this issue, but the deliberations seem to suffer from an un-

White House, November 15, 1960), on pp. 4–5. "By the word 'scientist' we mean someone who is fit to take part in basic research, to learn without a teacher, to discover and attack significant problems not yet solved, to show the nature of this process to others—someone, in short, who is equipped to spend a lifetime in the advancement of science, to the best of his ability."

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warranted timidity. It looks as if there were no choice except to emasculate either liberal education or professional propaedeutics, whereas what is called for is not a decision in favor of one against the other, but rather a combination of both in balanced proportions. The same applies to decisions about teacher-training, technicians-training, administrative training, and other fields as well. The problems involved cannot be solved by extremists, either by ultraconservatives rockbound in status-quo positions or by ultraprogressives submitting to the momentum of political and economic pressures. Unquestionably the growing differentiation of the scientific process has created the need and explicit demands for a corresponding educational differentiation that would split the various specialized branches of the academic tree even further down into and off their common stem. However, if this process were allowed to go too far, the whole trunk would lose coherence and fall apart. And since this limit will appear different to the men living in the trunk and to those living in the branches, "science" cannot claim to enter the negotiations with a single unified voice.

The pressures for an earlier separation of the branches of professional training from the trunk line of general education are, of course, a reflection of the progressive fragmentation of science into ever more specialized branches—a familiar subject for both complaints and justifications. The trend is here and must be faced. Its impact on the university is clear. The challenge, I believe, can be met only by better differentiation of What for Whom? Differentiation, rather than standardization, must become the key objective of the modern university. It seems to me quite feasible to resolve the conflict between the increasing clamor for *early technical specialization,* to fill the growing manpower needs of industry and government, and the equally vigorous assertion of the primacy of a *broad general education* as the sole means of salvaging that rare and precious resource of the future, the creative scientist. All that would be required would be a modulated application of both principles in different proportions of emphasis designed to fit the different types of candidates—those bent on simple training in the "tricks of the trade" at one end of the scale and those eager for a broad background of knowledge at the other.

It is worth noting that a common misconception blames the employers—industry and the professions—for the overemphasis on specialized training in universities, while my experience has been that by and large they would prefer to have academic institutions fur-

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nish them with open-minded, roundly educated people, albeit with general technical competence, rather than with indoctrinated specialist robots who would have to be retrained "on the job" anyhow. The main pressure for early specialization seems, on the contrary, to come from the prospective employees, the crowd of individuals who are heading for a limited occupational field in which to earn a living and who want to get there as directly and quickly as possible. Since this applies to large numbers of prospective physicians, chemists, veterinarians, teachers, engineers, and others, one can rightfully question whether it is justifiable to shortchange on their account the more highly motivated and qualified minority of budding genuine and creative scientists by forcing them to share the same pablum with the average, who do not care for a richer diet.

Having said this, let me add, however, at once that much as I advocate discriminative treatment for different groups according to their respective aspirations and aptitudes, I still think it would be ruinous to surrender to the growing demands for almost pure professional or vocational training at the expense of breadth and flexibility, comparable to the raising of sterile workers in an ant colony. Thus, having made the case for separating, though on a graded scale, "scientists" from specialized practitioners, I gladly associate myself with Gerard Piel in his remarks on the education of the engineer:

> Having distinguished science from engineering by implication here, I should like to set that distinction aside. Such distinction always raises troubling metaphysical, not to mention social, questions of hierarchy and pecking order. Let it be said simply that understanding and control are inseparable. Engineering, as the closest coupling of science to society, is too widely celebrated for its utility and not enough for its creativity. What is more, engineering derives as much historical significance from the challenges it lays to understanding as from the applications it makes of understanding. . . . To careers in science, therefore, society must summon independent spirits. This is no work for the artisan equipped with slide rule and handbook, for the intellectual mercenary with his talents at auction. The survival and welfare of an expanding world population hang on the vigorous expansion of the public domain of science and on the efficiency and equity with which it is exploited. Men of science must be independent men, with the vision to comprehend the context of their work and the courage to assert their independence in it.[7]

After accepting such a high-principled design for socially responsive science education, how can one translate it into practice with due regard to the growing diversity of needs, interests, talents, and economic limitations which the university must face? Can the

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university inherited from yesterday measure up to today's desiderata, which will be tomorrow's necessities? This, then, at last raises the question: Who is this "University" to which we are referring in the singular?

Who Is "the University"?

It will be noted that I have posed the question in the personified form of "Who" instead of the grammatically correct objective "What" of current custom. The explanation is that "the University" is indeed a personified abstraction. In a realistic view there is no University—singular; all we have is universities—plural. Whether there ought to be a more unified concept, and whether or not it should then be translated into practice, are matters which have been debated for more than a century and which other chapters of this book will surely consider. But for the purpose of our discussion here it seems quite evident that, just like "science," "University" remains a generality with little definite meaning. Not even the most general definitions will hit the mark. When John Henry Newman, the later Cardinal, described it in 1852 as "a place of teaching universal knowledge," but promptly added that "this implies . . . the diffusion and extension of knowledge rather than the advancement,"[8] he certainly did not anticipate that the latter qualification would be thoroughly disavowed by the academic developments of the decades to follow with their ever greater stress on research. The point is clear: Since the category of "university," just like the category of "species," embraces a wide variety of specimens and furthermore is subject to continuous evolutionary change, any concept implying uniformity or constancy would be illusory.

Adopting this evolutionary simile, we are at once faced with the question of whether evolution is goal-directed. Organic evolution, by and large, is now considered to operate blindly, or rather by hindsight. If so, the new efficiency device it has created—the human brain with its capacity for reasoning—is radically changing evolutionary methodology in that it can replace hindsight by foresight. In other words, if universities, generated and tossed about by random currents of cultural and political history, have come to be the hodgepodge of institutions disparate in purpose, character, performances, and size which they appear to be, is it compatible with human intelligence to let their future courses continue equally capriciously and unrelatedly? Or should one try to redesign the system so as to adapt

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the product of the past for a more unified and concerted service to society in the future? The reason that I phrase these questions as antitheses, notwithstanding my stated aversion to such categorical distinctions, is precisely the fact that I believe them to be unanswerable in this form. And yet public pronouncements that sound like answers to them are legion. Let me paraphrase some samples of argument both for radical remodeling and for continued laissez faire; both *for* and *against* a fundamental reorientation.

Pro: The university should rise above being merely an assemblage of individuals employed for statutory service on teaching curricula or research contracts or for the privileged pursuit of their scholarly predilections. Its members should develop a strong sense of cohesion and group responsibility as a "community of scholars" with common purposes, stemming from common ideals and responsive to common needs of society.

Contra: A university should be simply a facility for able individuals to develop, display, and proffer their intellectual wares, a sort of market, like the Greek *agora.* They need have no common collective goal or pattern so long as they do competent, and honest, jobs.

Pro: The university should not be a shelter for individuals indulging principally in tasks of no immediate and readily demonstrable utility to a society ever more clamoring for practical services and concrete deliveries; one of its major aims should be to relieve the manpower shortages in the professions, particularly those which enable the population to share the benefits of scientific progress; accordingly, it should train more medical practitioners and engineers—especially the latter—even if in doing so it has to curtail more esoteric lines of traditional university interest.

Contra: Our world is already precariously close to being torn asunder by stresses engendered by unprecedented innovations too numerous, precipitous, modish, transitory, and mutually unrelated for the safe maintenance of equilibrium as our society keeps evolving; therefore, and precisely in the self-interest of society, it is imperative that at least one steady focus—the university—insure continuity of progress by asserting and strengthening its traditional role as guardian of the cohesion of knowledge, the balanced perspective, and the long-range outlook, not letting its unhurried, steady, scholarly pace be upset by fancies, fashions, or group pressures of the day.

Pro: The university should abandon its self-arrogated station as a sort of global arbiter purportedly entrusted with guardianship of the

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common values inherent in all human cultures; it should rather concentrate on promoting tangibly the self-interests of the particular national or group culture to which it owes allegiance, self-interests which, in a competitive scientific society, would place science and technology foremost.

Contra: The university should be dedicated broadly to the universality of truth rather than let its scope be confined and even corrupted by narrower considerations; it must retain its traditional freedom for supranational, supradoctrinal, suprapolitical thought, expression, and action. Science, by method and subject matter predisposed for such universality, must act as pacemaker for the emergence from sectarianism of all the other cultural endeavors of mankind.

This list of opposites, which could be amplified and documented by many convocation addresses, illustrates the inconsistency among the popular concepts of the essence of a university, and hence the absurdity of trying to reduce the relations between science and "the University" to a single uniform rule. Instead, the profitable course for universities and for the scientific establishment is to accept the great multiformity of both and to try to effect *the most congruous match between their respective patterns.*

Neither pattern, of course, has to be accepted in its present form as immutable, nor need further evolution of these patterns be left to such erratic and unrelated influences as have molded them in the past. Quite to the contrary, in the evolution of human affairs deliberate reasoning must supersede the slow and painful method of organic evolution by blind trial and error. The brute decisions of organic nature, which rule in favor of the predisposedly fitter ones as against the predisposedly less fit ones in environments common to both, must now be mitigated by rational efforts at inducing the contestants to accommodate themselves to each other and to modulate their environment so as to fit them both. Of course, one must have no illusions about the limits within which opposites can be bridged and reconciled, conflicting interests harmonized, parasitism turned into symbiosis. But man has certainly not yet exploited his faculty of rational adjustment to an extent that would bring him anywhere near those limits. To exercise and to strain to their limits his powers of reasoning, foresight, and adaptive action is indeed one of man's noblest obligations, and as he goes about bringing some order into the institutions of his society, one would hope that rational powers will win out over sheer sentimental or inertial continuance of ill-matched patterns of tradition.

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Both science and university are now in this phase of groping for new patterns more suited to the conditions of the present and their extrapolation into the future. In this search such one-sided dogmas as listed in the preceding pages, can serve at best, like Scylla and Charybdis, as perils to steer clear of: the safe course lies between them, the keyword being *balance*.

More specifically we are led to the following conclusions, based on the recognition that what is called "the University" is in reality a most variegated system of institutions differing individually as to objectives, methods, service, size, and rank; and what is called "science" is likewise a highly composite enterprise. So is society. Evolutionary trends, organic as well as cultural, have always been in the direction from loose aggregation of independent units toward combination into integrated higher-order systems. The change from independence to cooperative *interdependence* endows the merged constituents with heightened viability and endurance, for their very diversity gives the compound system the versatility needed to maintain its vital integrity amidst the incessant unpredictable fluctuations of the world around it. In return for submitting to some restraints on their degrees of freedom, the parts derive from their association not only the benefit of mutual support, but above all the opportunity to develop to their full potential those particular individual faculties which are most specifically their own.

Naturally the greater is the degree of diversification and the resultant specialization of parts, the greater also becomes their dependence on the system as a whole, and consequently, the task of integrative regulation; the greater, in further consequence, becomes the danger that the regulatory faculties of the system will be taxed beyond the limit and break down. To maintain steadiness of progress, evolution has therefore had to keep teetering between opposite pulls—balancing trends towards ever greater differentiation, which if excessive would portend eventual disintegration, against trends in the direction of ever greater uniformity, which would as in inbreeding lead to sterility and loss of flexibility for adapting to changing circumstances.

Evolutionary reasoning thus can condone neither anarchic individualism nor an autarchic scheme of mass conformity. Applied to the universities, this means evolutionary repudiation of both extreme indulgence in individual predilections and absolute submission to any uniform mission, that is, other than the call to serve. Universities must not renounce diversity and individual identities, but they must learn to contribute harmoniously to a *group* performance less

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haphazard in its total aspect than heretofore. In short, they must ascend from the state of a loose *mosaic* to that of a cohesive *system* of diverse, mutually complementary and sensitively interacting parts, or partners.

I submit that nothing short of such a collective, integrated system of plural universities with diverse functions can fulfill the ideal overall function of "the University." Any attempt to make any one existing university over into a miniature version of this total scheme is bound to end as an exemplary showcase of mediocrity and triviality, for in trying to be comprehensive a single university would have to spread itself so thin that it would lack depth and quality. The differentiation of both knowledge and its users has gone too far for any single institution to be able to attain the necessary critical mass for dealing with the total spectrum comprehensively, profoundly, and competently. Yet united in groups, universities can measure up to the requirements. They therefore should band together into integrated compounds, as in the evolution of the higher organisms single-celled precursors joined to form many-celled communities, taking advantage of the efficient principle of "division of labor." Instead of being "a community of scholars," I visualize the university of the future as being a *community of scholarly institutions.*

At present it is neither. In fact, as I have said earlier, the university—singular—does not even exist except as an allegorical abstraction. This does not mean that individual universities may not have definite general goals, as well as the will to pursue them. But one need only strip their histories of rhetorical adornments to realize how limited their power to stay on self-set courses has been. Great leaders with vision or special interest groups with more limited objectives may design blueprints for the future, but as the latter come to materialization their development is so deflected and distorted by outside influences beyond the control of the originators that the original design is largely obliterated. University histories are full of examples of how environmental factors unrelated and even inimical to good educational philosophies and practices have often defeated self-determination: political pressures and lures; manpower needs; alumni whims; deficiencies of pre-university education; fiscal stringencies as well as the temptation to accept compensatory economic bribes; excessive intrusion of unacademic managerial technicians; and at times even a fifth column of contrariness within the faculty.

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Faced with such vagaries, some institutions have had the moral and financial strength to hold as firmly as possible to their self-set course, while others, lacking either clear goals or determination or resources, have kept from drowning only by riding the waves of opportunism. But here they are, these products of history, each one performing some major or minor service, useful despite their utter disparity, from the most highly principled, almost monastic centers for the search and propagation of truth at the one end to mercenary trade schools and diploma mills at the other. Confronted with the gamut of institutions, the question is not whether diversity should be renounced in favor of any one academic ideal, or not even at what point along the scale the epithet of "university" becomes inapplicable, but rather what degree of institutional diversity is essential in order to meet the enormous diversity of needs of our differentiated society and to match the wide spectrum of motivations, interests, and aptitudes of individuals to be served.

The latter point is not always taken realistically into account. It is fortunate that our society, being in need of mounting numbers of practitioners in medicine, in law, in schools, and in parishes, can count on a large quota of citizens who want, quite simply, to be just competent physicians, lawyers, teachers, priests, without aspiring to the more exalted stations of scientists, jurists, scholars, or theologians. So truly the graded scale of colleges and universities reflects the graded needs, wants, and aspirations of people. Therefore, next to the replacement of individual self-sufficiency by integrated realignment in collaborative groups the universities of the future face the added task of identifying more precisely what needs of the culture, the society, and the people they must serve and of subdividing and apportioning out among themselves their offerings accordingly. Personal preferences and predispositions for work bench over library, for theorizing over gadgeteering, for naturalist observation over dynamic analysis, for dealing with people over dealing with concepts, for professional and economic success over sheer satisfaction in self-improvement, must all be honored instead of being frustrated in a common mold purporting to serve them all—and matching none.

Unquestionably, a critical re-examination of the degree of correspondence between the current patchwork of university offerings and the pattern of needs would reveal major incongruities. Should corrective action toward higher congruance then be undertaken on the small scale of the individual campus? Hardly the right solution,

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for let us suppose there arose a powerful move to train, for instance, more doctors, engineers, or business administrators. Would not any given university, responding to the call by enlarging the respective schools, then have to choose between the equally undesirable alternatives of either trying to maintain its former proportionate structure by inflating the less marketable branches, or else abandoning the latter to a relative eclipse? Surely the solution would lie in recourse to the principle of the *collective system,* in which each member can choose to play, instead of an illusory *universal* role, a realistic *partial* one, thus preventing its energies from being distracted, diluted, and dissipated by ancillary commitments, historically or prestige-dictated, which no longer accord with its context; while at the same time the proportions of the whole can be preserved by other members who select partial tasks of compensatory or complementary character.

The proposition I am here expounding is the evolutionary compromise between conservation and progress. Since no single university can encompass any longer the full scope of the ideal "universal university," it should resist the urge "to be all things to all men" and "to go it alone." Instead each one should concentrate its major energies on those selected sectors of the total field of knowledge which it is supremely qualified to investigate and teach. To some extent this practice has already come into effect as a matter, if not of principle, at least of economy. Every institution has certain areas of strength which it tends to cultivate more than others. Yet the significant distinction between this outcome of accident and necessity on the one hand, and on the other hand the orderly scheme to be envisaged for the future, is that the differentiation among universities in the past has been piecemeal and incoherent so that the various pieces do not fit together to form the harmonious whole that a university system, as here advocated, should represent.

For the formation of a truly effective and viable system, a certain minimum number—a critical mass—of institutions would have to come together, review their respective functions and capabilities, and with the least possible incursion on individuality and sovereignty work out an integrated plan so that collectively they would so supplement each other as to cover the total continuum of knowledge in all its essential scholarly and professional ramifications. Three major considerations would have to guide such integrative efforts: the filling of significant gaps, the correction of serious

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disproportions, and the lessening of redundancy, particularly where strength could be gained by merging separate units that had remained weak because of isolation or inadequate support. For a concerted program of this sort to succeed would, of course, presuppose, in addition to the re-allocation of educational tasks and subject matters, the harmonization of standards of performance, the free movement of students, and the facultative exchange or sharing of staff members within the association.

Without elaborating the point, it seems that efficient superuniversities, "communities of scholarly institutions" of this description, could appropriately be set up by regional compacts. Each association would comprise a suitable assortment of privately endowed universities, high-grade liberal arts colleges, and professional schools. Administrative obstacles to the inclusion of state and municipal institutions and of land grant colleges might also be overcome eventually. There are signs of a growing recognition of the need for such a combining of forces and concerted programming in higher education, as for instance in a measure of program coordination among the universities of the Southern Conference; in similar arrangements among regional groups of colleges; and in the establishment of such organizations as the Southwest Graduate Research Center, the Midwest Interuniversity Library Center, and the Brookhaven Laboratories of Associated Universities, Inc. It would seem timely to amplify and expedite similar trends wherever they appear, with the deliberate aim of furthering the emergence of the "Integrated University Compact" of the future through the linking of existing autonomous institutions of higher learning into self-regulatory networks.

In such a framework it will be easier than it is at present to satisfy the growing variety of educational needs by a corresponding variety of programs without having a rigid one-to-one connection between any given program and any given institution. By definition, the integrated group would contain collectively such a complete set of major offerings that any essential program, however broad or narrow, could be composed from them simply by combining an appropriate selection of items from that comprehensive list into program packages.

As one can readily appreciate, this scheme would be both economical and efficient; it would curtail the boundless proliferation of institutions; it would conserve and concentrate the finite resources of academic talent, funds, and facilities; it would encourage

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the pursuit of novel "interdisciplinary" combinations of potential "hybrid vigor"; and it would have the necessary plasticity to adapt to changing circumstances. On the other hand, it would, of course, necessitate a far greater liberalization of student transfer among institutions—a feature reminiscent of the great universities of bygone centuries—as well as greater equalization of standards at reasonably high levels. It would place greater burdens of responsibility on both administrations and students, the latter having to give up a good deal of the sense of security engendered by current lock-step tactics of indoctrination and "togetherness," in favor of a wider range of the insecure, but personality-building, freedom of choice.

Such an ideal university system of the future is both conceivable and practicable. It would achieve the restoration of the very principle of *continuity, unity, and universality of knowledge* the loss or abandonment of which our universities bemoan. The basic common trunk of the tree of knowledge, presented in the early years of study, would be allowed to branch gradually by successive dichotomies of choice from the more general to the more specific, albeit with numerous anastomoses, in the methodical and consistent manner attainable solely in an integrated system; only the terminal branches would become relatively more consolidated as separate "schools," and even then not wholly single-tracked. Transition from "liberal" to "professional" education, from "undergraduate" to "graduate" preparation, from "basic" to "applied" areas, would be fluid, the terminology merely a matter of administrative convenience.

This prognostication of the emergence of harmoniously integrated university systems is based on evolutionary logic. Universities are integral parts of society. Both are in counterplay. Society is in a phase of rapid evolution. If universities were to stand still, they would be left behind to wither. Society, though suffering, would survive; universities might not. So universities must meet the changes of the social scene by corresponding adaptive alterations of their own pattern.

However, in calling on higher education to adapt itself to the evolving social environment, one must not lose sight of the reciprocity of the relation. As I have said earlier, human intelligence and foresight can improve on blind organic evolution by substituting conciliation for victory; by making adaptation a two-way proposition. In short, the social environment must in turn be receptive for

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adaptive claims fed back to it from the university system. Their greater service to the community would also entitle the universities to assert their leadership in intellectual matters, with full partnership in all cultural affairs, exercised most effectively through the leaders and influential members of society which they educate.

To maintain the highest possible standards of *education for responsible leadership* remains one of the prime obligations of the universities, those of the future even more so than those of the past. Of course, to strengthen and broaden *mass education* is equally vital in that it shifts the basis of public acceptance of leadership from compliance with persuasive dicta to the understanding of convincing arguments. This is indeed only repeating what has been stressed so often—but cannot be stressed too often—that while educational goals and standards must be raised on all fronts, the most important task is to give that scarce supply of superior talent, paired with responsibility, a challenge and opportunity to develop native faculties to their maximum; this means placing quality above quantity, with a premium on excellence. Public support for this precept is one of the adaptive contributions society must make if the evolution of both universities and society is to be kept in a dynamically self-adjusting correspondence.

Science in the University

The range of inner flexibility in the integrated university system I have outlined would reduce the question of "the" place of science in a university to absurdity, for it could allow for as many different places, roles, and relations as the growing and ever more highly differentiated field of "science" can command. We read in the White House report "Education for the Age of Science":

> Science, engineering and technology have obviously been responsible for a host of conspicuous changes at all levels of our modern civilization. There is much reason to expect that such changes will continue, and will indeed accelerate. There is no way to turn back the clock or to turn off scientific advance. There will be no international moratorium on science or technology. The people of the United States, on the most practical grounds, must accept and support these propositions.

Lest this arouse the specter of scientific dominance, let me quote further from the same report:

> One of the great strengths of this nation is the diversity of its citizens. No man or council of men dictates what our people individually

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should do, or how they should be educated. Each of us is remarkably free to pursue that which interests or profits him personally. Out of this great diversity of individual expression comes great strength and wide capability. The diversity should be husbanded. But it cannot long be fruitful if it breaks the nation into isolated groups. Going his own way, a man must understand why other men go theirs, and must respect their right of choice.

A primary objective of an improved educational system should be to bridge the gaps between important segments of the American people. There are many such gaps, even among highly educated people; between scientists and artists; between intellectuals and non-intellectuals; between scientists, humanists, and social scientists; between scholars, research workers, and teachers; between pure scientists, applied scientists, and engineers; and there are others. Such gaps inhibit the close collaboration between groups which is essential to improving the intellectual atmosphere and developing a better and stronger society.[9]

and from a later report from the same source:

> Even in the interests of science itself it is essential to give full value and support to the other great branches of man's artistic, literary, and scholarly activity. The advancement of science must not be accomplished by the impoverishment of anything else, and the life of the mind in our society has needs which are not limited by the particular concerns [i.e., scientific] which belong to this Committee and this report.[10]

In summary, the possible distortion of harmonious proportions in the pattern of education as a result of the phenomenal expansion of science is not only clearly recognized; science itself cautions against it. To maintain balance, or to compensate for disequilibrium, could be accomplished much more easily in a diversified collective system than within the rigid framework of a single institution. This applies to the correction of imbalances not only of subject matter but of functions as well. And because the issue of disproportionate attention to science in the functions of research, teaching, and public services is such a lively one, I would like now to give it special attention in the light of what I have said before.

Essentially, the major functions of a university, as I see them, are the following four:

(1) The preservation, critical interpretation, and synthesis of existing knowledge.

(2) The furtherance of the acquisition of new knowledge, and the development of the intellectual and technical tools required in this process.

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(3) The training in the application of existing knowledge to the practical needs of man.

(4) The transmission and dissemination of knowledge and of its implications and applications.

Even though universities are assisted in these tasks by libraries, museums, govermental and industrial establishments, professional societies, and the like, "the university" still stands as the integrated center where all four of these functions become confluent and interact freely for the common benefit of all of them, and hence for the best utilization of knowledge for the common good. The super-university of the future would be in a uniquely favorable position to give balanced attention to all aspects: to the scholarly synopsis of the accomplishments of the past and a synthesis of its lessons (1); to the discovery and formulation of new scientific principles and methods by research and the formation of theory, and to the education of scientific scholars (2); to the extraction from the store of basic knowledge of the rules and techniques leading to practical applications; and to the training of scientific specialists, practitioners, and teachers (3); and to the diffusion of scientific knowledge broadly to the populace so as to widen horizons and interests and develop maturity of judgment (4).

In each of these four categories the problem of maintaining sound proportions between the expanding scientific domain and the other academic commitments recurs. Can it be met by mutual accommodation without radical dislocations? Let us look at a few concrete examples for each of the four fundamental functions.

(1) *The preservation and synthesis of existing knowledge.* Greater concern with the history, structure, and cultural values of science has created not only an opportunity but a genuine demand for a far more active interplay between the sciences and the humanities in education. The historic and philosophic spirit in science still suffers from atrophy. Usually the fruits of science are taught without explaining the nature and roots of the tree that has borne them; preoccupation with the most recent advances is allowed to obscure the fact that they have grown steadily from a historic past. Yet it becomes increasingly important to impart a feeling for the continuity, consistency, and cohesiveness of science to the future leaders of a generation that is overly impressed by the spotlighted glitter of ephemeral novelty. There is, moreover, a goldmine of conceptual and factual material buried in the past

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literature of science which is practically ignored and unprocessed, bypassed in the manic rush for "doing research." Unless "doing without thinking" is to be conceded supremacy over thoughtful work or even over "thinking without doing," history and philosophy must assume a major task in science education. But they must tackle it not by the expedient of supplementary courses in "History of Science" or "Philosophy of Science," least of all of the purely chronological and anecdotal variety, but by instilling the prospective teachers and workers in science with a true appreciation of the historical and conceptual foundations of scientific thought so that they may learn to see and teach current developments as threads in an intellectual fabric extending from the past into the future.

But then, would not those same historians in the humanities profit reciprocally from closer contact with their scientific colleagues? I am not thinking of the utility of scientific techniques, such as the dating of historic documents by radio carbon, the use of pigment chemistry to check the authenticity of famous paintings, or the recourse to the statistics of cryptography in deciphering ancient tablets. These are taken for granted. But has full advantage been taken of advances in social and comparative psychology to trace the underlying motivations of major historic movements beyond the standard references to political and economic trigger actions; or of the role of modern operational physics, with its relativity and indeterminacy principles, as a possible contributor to the instability of values in our time? These are matters not just of casual interest but of broad concern for the understanding of our culture. And as he gains acquaintance with scientific principles, the humanist will also learn to appreciate better the nature of their origin from what the uninitiated often regard as trivial and redundant labor—namely, the enormous series of painstaking observations, elaborate measurements, intricate experiments and calculations—activities as germane to the purpose of "the university" as are field trips for the excavation of ancient cities or learned commentaries on literature or music. The case for harmony is further strengthened by the cross-linking between science and art through mathematics and esthetics; and there are many other illustrations of the continuity, rather than demarcation, that exists between the sciences and the humanities.

In any subject matter, whether scientific or non-scientific, there is an endless number and variety of things a person might like to do,

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out of curiousity or for the mere playful practice of his training. To choose among them requires a sense of direction and *relevance.* Historical and conceptual perspective helps to develop and strengthen this sense. In science it has of late shown unmistakable signs of decline.[11] It is surely imperative for the humanistic branches of a revitalized university system to take the lead in restoring it, and in the interplay strengthen their sense of relevance as well. Such fruitful interaction is not promoted by expressions of mutual disdain, particularly in view of the fact that the purported cleavage of culture into scientific and humanistic halves, in my opinion, is a plain artifact, merely a relic of medieval divisions of knowledge.

(2) *The acquisition of new knowledge.* The criterion of relevance as guide in the self-selection of one's academic tasks applies also to one of the knottiest problems faced by the universities, namely, the disproportionate expansion of scientific research within their walls. This issue has far too many facets for me to give here the critical evaluation which it would deserve. Instead of reiterating arguments now rather widely discussed, I shall confine myself to accentuating a few aspects that I do not find properly spotlighted in current debates.

The first pertains to the assessment of the degree and rate of expansion of the scientific domain. There is talk of a "knowledge explosion." Undeniably, the spurt of growth of science in this last century has been, as some would call it, "breathtaking." However, if it is referred to as "staggering the imagination," one wonders whether this does not mean the imagination of the unimaginative. Besides, the lack of historical knowledge and perspective deplored above has given current events an appearance of spontaneous eruption. With proper perspective, one would have recognized that this sudden explosion has really been the orderly result of a continuous evolutionary process, steadily accelerated and amplified.[12] In comparing today's picture of the universe, of matter, of life processes, and even of mind with that of fifty years ago the progress made appears truly dramatic, but what is not usually pointed out is that in this progress we have discovered and identified more gaps of knowledge and more new problems to be solved than we had ever known existed; more even perhaps than the positive solutions we have found. Indeed our ignorance, that is our conscious realization of what we do not know, is growing so rapidly that the resulting vacuum attracts increasing numbers of curious minds. It is this which establishes the legitimate expansive claim of science.

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Yet there is another side to the coin. The vacuum is also sucking in masses of "fellow travelers" who ride the currents of prevailing fashions, neither truly conscious of the problems to be solved nor qualified to contribute to their solution except in the auxiliary services I have listed earlier. In other words, the ratio of productive over creative scientists has increased enormously by the numerical inflation of the former group. As a result what we are facing is not a knowledge explosion but a veritable inundation of informational data finding vent in a corresponding "publication explosion."[13] Instead of a problem-orientated selectivity and goal-directed uphill striving, much present research follows the downhill course of least resistance, carried forward largely by inertial forces. I have no direct substantiation for this conclusion for any of the scientific disciplines other than the life sciences; but I have been given to understand by colleagues in other fields that the situation is about the same all around.

Given this fact, the universities have an even heavier responsibility now than they have ever had before to husband the dwindling proportion, among the mounting numbers of "scientific workers," of scholarly and singularly creative individuals. They are the ones on whom society must rely for the steady and balanced continuance of scientific progress in accordance with the rigorous research discipline of the past. They are the ones whom the universities must single out, protect, promote, and furnish with optimum conditions. Not only do their efforts have an infinitely higher prospective yield than do the routine operations of the average scientific workers; above all, their example resets for others the mark of morality, discretion, critical judgment, self-discipline, and dedication to that higher plane from which it has been slipping as a result of the massive influx of rote performance.

For the same reason, it is vital for the universities to resist pressures for undertaking more sharply delineated so-called "project" and "contract" research than may be useful as a training device. The project system, which allocates funds for a specific purpose, is admirably suited for developmental work, that is, for tasks that can be clearly circumscribed because we know essentially what we want to find and can spell out in detail how to get there. It likewise is suited to the testing of an existing theory, to the broadening of an existing set of data, to the improvement of an existing technique, or to the elaboration of existing doctrine. At any rate it places a premium on the continuation of existing trends rather than on the exploration of new ones; and the very source of scientific discovery, the inductive

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process—the prospecting of the wholly unknown—is given little of a chance.[14]

In recognition of this fact, granting agencies have come to establish a triple scale of research support as "project grants," "program grants," and "institutional grants" in ascending order of latitude and descending order of specific predelineation. In general this scale of degrees of freedom has worked well, but the pressures to narrow the range of indeterminacy and risk-taking in publicly subsidized research continue nevertheless. Their source lies in the bankruptcy of trust and in the widespread lack of comprehension of the nature and workings of the scientific process, for which the accounting system of industry and commerce is utterly unfit. Unless universities, as the last bastions of "free enterprise" in science, take a resolute stand in this matter, the efficiency coefficient of scientific yield will decline further.

One safety provision against excessive administrative intrusion into research policies lies in the fact that experienced scientists participate in policy formation and program evaluation. Although this involves a diversion of creative scientists from creative work, the use of expert consultants for evaluating scientific merit has by and large proved successful. Even if at times the rate of turnover of membership on such judicial boards and committees has exceeded the rate of maturation of sufficient people with the necessary judgment, perspective, and experience to fill the needs, the yield has still remained infinitely better than would have been possible if any of these programs had been administered by scientifically uninformed and inexperienced professional administrators. I am not saying that there is no room for improvement in current screening procedures. What I am saying is that some modicum of mature scientific counsel is a better safeguard against the waste of public funds than are incursions into the research process of legal and accounting procedures which operate with criteria of "performance" and "productivity," which are tailored for contract work and marketing, but which are quite inapplicable, and indeed demonstrably detrimental, to scientific proficiency. Faced with the demand for tighter controls over the utilization of government funds for scientific research raised recently by the Congress, a demand which naturally has aroused anxiety and protest, the scientists themselves must share part of the blame for this retrenchment insofar as they have failed to counteract the gradual relaxation of standards of selectivity and efficiency. But the remedy must come from efforts by the universities themselves to resur-

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rect those standards of research morality, and not from external policing.

Of course only those who do not know scientific history, or have never made an original contribution to scientific progress, can harbor the illusion that scientific discoveries can be made to order by commission and in proportion to invested funds. Those who would want to label each dollar of public funds invested in research by isotopes and trace it through to a clearly identifiable and tangible product would be disillusioned to learn that the less of the identifiable input they recover, the more the progress of science may have been furthered. I say "may" advisedly, for there is risk involved in any scientific venture. Some of the input is bound to be wasted. But no one from the outside, unfamiliar with science, can judge what is and what is not a good risk.

Free universities, standing between profit-motivated private industries and the bureaucracy of public agencies, thus have a key obligation to stand up for the principle of risk-taking by the conscientious, competent, disciplined, and dedicated investigator and to protect him against clerical shackles and importunity. But here is another side of the picture: Can universities nowadays really in clear conscience testify to the fact that most of the research within their precincts is carried out with the fullest possible measure of conscience, deliberation, responsibility, and competence? As I have said earlier,[15] there is no doubt that at least in the field of my own purview, a certain laxity of aim and effort has given rise to much shoddy, inconsequential, redundant, uncritical, and ill-conceived research, the mainsprings of which may have been nothing more than that "soft money" was available to support it. In this light, some tightening of granting policies and procedures could turn out to be a salutary stimulus to raising standards again.

This leads back to my earlier emphasis on the sense of relevance, which is so easily lost in the narrow, deep, and dark shafts of rote performance in a given specialty. Because of this, and in order that the universities may reassert their moral right to plead for freedom of research, untrammeled and uncontrolled, it is imperative that they shun any sort of investigative engagement that does not qualify on two counts: that it hold promise to contribute both to the advancement of knowledge and to the building of a person possessing knowledge and the ability to use it. The motto for scientific research in the university should become again to turn out scientific *personalities,* not scientific *products.*

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Only those who have been through the process can truly understand how far superior an education is that has let the student experience the thrills as well as the disappointments of exploration, the elation of success in resourceful effort, and the disciplining power of tests of evidence which his participation in active research engender, as compared to book learning and passive submission to second-hand indoctrination. I thus conclude that *every kind* of institution in the diversified spectrum I have outlined—yes, even teacher training schools—would stand to gain from having some degree of scientific research conducted on its campus, motivated not chiefly by the need for training specialists but by the disciplining virtue of research in developing critical thinking.

These comments on research lead logically to the next point:

(3) *Teaching and training.* Research as a prominent feature of the academic scene is of relatively recent origin; witness the definition of a university by Cardinal Newman quoted earlier. In modern times, the general principle of the indissolubility of teaching from research is gradually becoming the rule. Sporadic opposition to it by educational tacticians is as one-sided as is the contrary move by technically preoccupied scientists to let handiwork in laboratory or field crowd out the cultivation and exercise of intellectual endeavor. Once again the question is one of balance—not a "Whether-or-not," but "How much for Whom and When?" In full awareness that the student's time, resources, energies and absorptive faculties are limited, I still submit that a more sizable share than in the past can be spent on research without encroachment on the effectiveness of teaching, provided the following four premises can be fulfilled.

(a) Elementary research experience should be encouraged on the high school level. A trend in this direction has lately made some notable gains. Its denunciation by opponents as nothing but a recruiting drive for technical professions only serves to show how little the detractors know, and partake of, the true spirit of science, and hence how important for a balanced outlook in life it is for future generations to be spared similar blind spots. On the other hand it would be ludicrous to defend some of the current high school manipulations and exercises in science as introductions to research, let alone to the spirit of science; criticism of "Science Fairs," raised in a recent exchange of communications to the journal *Science,* is quite to the point. If science is misrepresented to the young as an array of glamorous "spectaculars," the seed is sown for later anticlimactic disillusionment, perhaps even dishonesty. But trimmed of frills, some

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laboratory and field practice to sharpen observation, controlled analysis, and critical evaluation of the phenomena of nature cannot be started too early in life. As for the colleges and universities, such earlier initiation to research would certainly relieve some of the competitive demands of research for time that otherwise would have to be taken from teaching.

(b) Contrariwise, the teaching load in higher education can certainly stand radical curtailment. This is not the place for a philippic against the cramming of curricula with offerings from both the ultraconservative and ultraprogressive fringes of the academic scale—petrified wood at one end and excessive fertilizer, crop-destroying, at the other. But let teaching practice squeeze the water out of its own substance and revert to concentration of and on essentials, and let research likewise set an example of relevance-mindedness, and time will cease to be the limiting factor for tending the legitimate needs of both.

Implied in this proviso is that book-*learning* be made to recover from its progressive degeneration into book-*teaching*. Teaching is teacher-student-polarized; learning is bipolar interaction. A good deal of the sheer imparting of information can be relegated to automation through audio-visual aids and television with their powers of condensing instructional material into its most expert and efficient form and then disseminating the concise product. Much of the teacher's time can thus be freed for those other aspects of education in which there can be no substitution for personal effectiveness—inspiration, discussion, criticism, and interpretation. Instructors can then rise again to the role of educators, and students, from passive recipients to active acquisitors of knowledge.

(c) No rigid formula should be set for the proportion of research in teaching programs. In general the proportion should increase gradually from high school through college to graduate or professional school, but otherwise wide latitude must be left on each level for the variety of individual and institutional objectives. In this sense an integrated group of institutions, allowing among them for both maximum and minimum requirements, could meet the diversity of future needs better than any single institution pegged to a standard average.

The same argument, however, applies just as cogently to the variety of individuals within an institution, division, or department. What ratio of teaching to research is proper? There can be no universal answer. It seems essential not only for every prospective

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teacher to have participated in some research activity, but conversely for every professional and research man in science to have had some experience in teaching; for having to explain matters to students does more than clarify one's own thinking. Above all, it trains the faculty of articulating one's own thoughts and observations. As editor of several scientific journals, having had to face the serious deterioration which good research results suffer from inept description—and I suppose that hospitals and industries could add corroborating evidence from the transcriptions by interns or engineers of patients' histories or product tests, respectively—I am disheartened by the neglect of the art of communication in the rearing of scientists. As in the case of the history of science, I see the antidote not in remedial courses in "Science Writing," except as a stopgap measure, but in increased opportunities for the student and young instructor to express himself in public, exposed to benevolent criticism.

Having thus recommended a modicum of both research and teaching experience as beneficial for every scientist, regardless of his eventual destination, let me reiterate at once the great variety of human aptitudes and talents to be dealt with. There are first-rate investigators who are poor teachers, and there are first-rate teachers with little flair for or proficiency in research. The former gains by doing some teaching, and the latter grows by making some investigative effort of his own; but neither can be forced into a common mold by a procrustean operation. Yet this is precisely the practice of many college and university administrations, which seem to rely mechanically—the college on a man's industriousness in teaching, the university on the volume of his research publications—as tests of achievement and criteria for promotion. The former thereby stymie some really promising investigators, while the latter divert highly effective teachers from their true calling into "grinding out research." This pressure for mediocre research output, growing in proportion to the abundance of research grants, is doubly pernicious because not only does it add to the glut of inconsequential data; what is worse, it places resourcefulness and excellence in teaching, by implication, into a rank of inferiority. Fortunately there have been sporadic signs lately that this inequality is beginning to be redressed. One realizes that science, like music, needs not only good composers but good conductors and performers as well.

(d) No less insidious than the gauging of the creativity of an academic man by the number of published papers to his credit, at least

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in science, is the attempt to rate academic service and effectiveness, whether in teaching or in research, in terms of man-hours—the punch-clock mentality. What is the time scale of an idea, of a discovery, of an invention? Can accountants be persuaded that moments of deep thinking, even off-campus, or a flash of genius, even during "off-hours," can undo or save years of expensive labor? Or are we possibly heading for a time when quantification of teaching and research performance will go even beyond the simple counting of the number of hours spent on the job and multiply it by caloric output as a measure of intensity of work?

I realize the magnitude of the problem facing many an administration in coping with vast numbers of students and faculty by other than impersonal methods. Nevertheless, save for service functions, automatic quantitative ratings will never provide a valid measure of academic performance in science. The answer may lie in giving human experience and judgment wider play. Appointments are made on a basis of faith and trust. Why then is not that spirit allowed to persevere throughout the appointive years? I have commented on a sad decline of risk-taking in research support;[16] perhaps risk-taking in individuals is likewise diminishing. At any rate there seems to be no better yardstick for judging optimum relations between research and teaching in science education than mature, sober, balanced judgment, taking into account the objectives of the institution, the special functions of its subdivisions, the diverse needs of its students, the variegated complexion of its faculty, its finite means and facilities, as well as the necessary reconciliation of economy and efficiency with the principles of freedom for individual self-development and self-expression. On the point of economy, it is well to remember that, in general, it will be easier to get n% greater efficiency out of available funds, services, floorspace, and equipment than to obtain an additional n% more money, n% more manpower, n% more space, and n% more instruments.

(4) *Adult Education.* The preceding comment touches on the growing subsidy by government to the conduct of science and the concomitant increase in the awareness and concern of the public for how its funds are spent, which may portend a mounting pressure for a greater measure of control. To quote from a White House release cited earlier:

> Perhaps the most important single task of the universities is to see to it that their own standards of freedom and excellence are maintained in a period of growing connection with government. While we do not share

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the notion that government money is necessarily subversive of university freedoms, it is obvious that large-scale Federal spending, like any other form of patronage, has its hazards.[17]

In the long run, this hazardous trend can be effectively countered only by bringing up an enlightened citizenry with comprehension of the nature and ways of science. Hopefully, as I explained earlier, the new generation now in school will already be better grounded in science than are their elders. However, in the interim till they mature and have decisive voices, there is a partial vacuum in the adult population's contact with science which in the interest of both ought to be filled. There is a patent need to introduce more science into adult education programs. Some will reply that this is already being done on an increasing scale. I disagree. With very few outstanding exceptions, what is offered in courses of "General Studies" or "Adult Education" is usually either some practically or even vocationally oriented display of "tricks of the trade" or a rather dull second-hand rendition of the elements of a specialized branch of science. Rarely is there the broad portrayal of science with its lights and shadows—its life, spirit, exhilarating adventures and satisfactions as well as its code, restraints, discipline, and frustrations; its grounding in disinterested curiosity as well as its unlimited bounty for man's self-interests; its enormous untapped potential as well as its inner limitations. This story is seldom told to the public from the rostrums of universities.

In line with the idea of integral programs within groups of institutions, it would again be preferable perhaps to have a favorably located member of the group assume a major responsibility in this field with due assistance from the other affiliated institutions, which thereby would be relieved of some of their "extension courses." The main thing, at the present juncture, is to give wider circles of the public an appreciation not only of the fruits of science, but of the nature of the tree that bears them and of its deep rooting in our culture.

Conclusions

I have tried, in this essay, to moderate between conflicting versions of the impact of science on the university. Extreme positions commonly betray confinement in remote corners from which only a limited aspect of a field can be seen. Although one may regret that many of the discussions about "science" and "the university" nowa-

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days bear signs of such partiality, based partly on unfamiliarity and partly on prejudice, it is far more significant to note the constructive efforts that are being made at synthesizing the separate views into a broad, well-balanced overview and presenting the total picture dispassionately in undistorted perspective. I have quoted examples from such efforts. More could be added. From their study I am encouraged to believe that the basic propositions set forth in this essay are shared by others, even though not universally. These basic tenets, in summary form, are the following:

I. Science is a major integral part of our culture, not just a service function. Its spirit is of as much concern to man as are its products.

II. The growth of science has naturally a critical impact on the future of the universities as centers of knowledge and of learning. Caution, lest growth turn into overgrowth, is indicated.

III. Harmonious growth is predicated on the reconciliation of conflicting and competing trends by mutual accommodation. Science and non-science are not opponents but partners in a common enterprise.

IV. As such, both must adjust to the emerging evolutionary change in their educational tasks by re-examining their respective roles conjointly with a deep sense of value and relevance, so as to concentrate on essentials, husband talent, and bar the infiltration of extraneous diluents. This applies to both teaching and research.

V. Both society and knowledge are in a process of progressive differentiation and particularization, which must be recognized and even assisted, but which must be kept from degenerating into tight compartmentalization and disintegration as a result of the abandonment of vital interrelations among the specialized components. The universities, as custodians of knowledge, have a solemn duty to preserve "unity amidst diversity." They must offset splintering by efforts at re-integration within their whole structure and its substructures.

VI. Differentiation has proceeded to the point where neither the diversity of objectives and fields of higher learning nor that of people's aspirations, needs, and aptitudes can any longer be served with competence within any single institution. True, schools of higher learning have also differentiated and specialized, albeit somewhat haphazardly. However, their total pattern is not sufficiently congruous with the patterns of need of either society or

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knowledge. Therefore, to remove present and to avert future incongruity, the universities will have to counterbalance specialization by combination into integrated groups—the only realistic method of protecting the creative potential inherent in diversity against the dulling effects of uniformity, standardization, and mediocrity. In a diversified system, science and non-science can find their proper distribution and proportions without pitting exaggerated claims of "social superiority" against an outmoded status quo doctrine of "cultural superiority."

VII. In order to achieve integration in such enormously complex systems as science and the educational continuum, it will be imperative to rise above the analytical method of singling out from an intricate problem simple component pieces for isolated solution, and to adopt the sprouting young methodology of "system thinking" appropriate to networks of intimately interdependent functions. Like other major activities of society that have already benefited from such integrative treatment, such as economics, traffic, national defense, natural resources, and others, education is such a network system and deserves like treatment, and science education cannot be viewed and dealt with rationally save in this context.

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1. See, for instance, three reports from the President's Science Advisory Committee: "Strengthening American Science" (The White House, December 27, 1958); "Education for the Age of Science" (The White House, May 24, 1959); "Scientific Progress, the Universities, and the Federal Government" (The White House, November 15, 1960); obtainable from the U. S. Government Printing Office, Washington, D. C. 25; and "Symposium on Science in Education," *Proceedings of the National Academy of Sciences* (U. S. A.), vol. 43, no. 7 (1957); and many others.
2. Paul Weiss, "The Message of Science," *Bulletin of Atomic Sciences,* vol. 15, no. 7 (1959), 274–277.
3. Paul Weiss, "The Challenge of Biology," *Science,* 118 (1953), 33–34.
4. G. W. Corner, in symposium on "Science in Education," *Proceedings of the National Academy of Sciences,* vol. 43, no. 7 (1957).
5. Weiss, "The Message of Science."
6. Carnegie Corporation of New York, *Annual Report* (1952).
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8. Cited from Quincy Wright's address "What Is a University," *Bulletin of the American Association of University Professors*, vol. 30, no. 167 (1944).
9. pp. 4 and 15.
10. "Scientific Progress, the Universities, and the Federal Government," p. 3.
11. Paul Weiss, "Experience and Experiment in Biological Research." Symposium on "The Experimental Method in Biology from the Time of Antonio Vallisneri to Present," ed. U. D'Ancona, Padova, *Science*, vol. 136, no. 3515 (1962), pp. 468–471.
12. Derek J. Desolla Price, *Little Science, Big Science* (New York: Columbia University Press, 1963).
13. As regards the distinction made here between "knowledge" and "information," see "Knowledge: A Growth Process," *Science*, vol. 131, no. 3415 (1960), pp. 1716–1719.
14. Paul Weiss, "Medicine and Society; the Biological Foundations," *Journal of Mt. Sinai Hospital*, 19 (1953), 716–733.
15. Weiss, "Experience and Experiment in Biological Research."
16. Weiss, "Medicine and Society; the Biological Foundations."
17. "Scientific Progress, the Universities, and the Federal Government," p. 12.

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DOUGLAS BUSH

The Humanities

BECAUSE "the humanities" comprise such diverse media, methods, and aims, and because I am not a universal doctor, I shall use literature as most central and representative. I shall try to deal with three main topics: the humanistic tradition of the past, its modern equivalents in scholarship, criticism, and teaching, and the general character and objects of literary study; the cultural climate outside as well as inside the university and its effect on the status and claims of the humanities, especially the powerful attractions and pressures of the modern scientific and technological revolution; and a final emphasis on the universal, unique, and irreplaceable role of the humanities in expressing and providing experience and discipline that are both aesthetic and ethical, the communication of an individual vision of life to other individuals. If these headings are or invite clichés, an inhabitant of our world may believe that they are in continual need of being reaffirmed.

1

Since the essential aim of humanistic studies remains what it always has been, we might look briefly at the historical pattern. To go no further back than to the Renaissance humanists, who so ardently revived and molded the Graeco-Roman tradition, *studia humanitatis* and similar terms comprised classical literature, history, and philosophy; these were the chief studies worthy of a free man, the kinds of liberal knowledge that nourished *homo sapiens*, that is, man as man, a human and social personality, not as a professional or technical expert. There was no modern division into humanities, social sciences, and natural sciences, since the classical writings comprised all three (and one great strength of classical education

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has been just that). If the early humanists, like Erasmus, were mainly indifferent to science (which had not yet become conspicuously important), some, from Rabelais to Milton, were not. But the central ideal of serious European humanists embraced intellectual cultivation and taste, rational and moral discipline, and civic responsibility—qualities which had been united in the great exemplar, Cicero, a moral teacher and magistrate as well as a model of style. The humanists looked backward in order to look forward; the classics mirrored a civilization that must be re-created as a basis for further progress toward the good life.

But the good life now included Christian faith, and many of the leading humanists, Italian as well as northern, were earnest Christians. They saw the humanities as complementary, not antagonistic, to Christianity and they carried on in more practical terms the medieval philosophic synthesis; as Cicero had said, *sapientia* is the knowledge of things human and divine. The noblest pagans had, by the light of natural reason, approached Christian ethics and faith, and the traditional alliance was unforgettably registered in Erasmus' echo of the liturgy, *Sancte Socrates, ora pro nobis.* One basic part of the synthesis was the conception of man as midway between the beasts and the angels and pulled by his animal and angelic impulses in opposed directions. If to the modern mind that idea seems quaint, it was, as an ethical and religious concept, a main source of the strength, health, and centrality of Renaissance literature, from Shakespeare down.

The primary humanistic activity was the editing, translating, interpreting, and teaching of the classics, and many men went on to application and emulation, to the writing of literature, history, and philosophy, especially for the guidance of rulers, and some were themselves engaged in public affairs. Though the division of labor was beginning, few were confined to one groove. Outside of humanism proper, the versatility of Renaissance artists has long been a byword. Within the ranks, to mention a name or two, the bold philologist Lorenzo Valla wrote on ethics and on the New Testament and used philology to show that the Donation of Constantine, the document that had buttressed papal claims to temporal power, was a late forgery. Juan Luis Vives, along with writing books on classical-Christian education, was a pioneer in psychology and sociology. Copernicus got clues from ancient astronomers. But the cardinal fact is that for centuries Europe had a cultural solidarity that transcended national and religious bounda-

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ries. Indeed one object of such men as Erasmus was the abolition of war and the creation of international peace; that special effort of course failed, but Erasmus, the Christian humanist *par excellence*, had more effect on the European mind than any writer between St. Augustine and Voltaire. All or almost all the great original thinkers and writers had more or less of the same kind of classical education and read, spoke, and wrote the same language, literally or metaphorically or both—Copernicus, Kepler, and Galileo, Machiavelli, Ariosto, and Tasso, Calvin, Rabelais, and Montaigne, Erasmus, Sir Thomas More, Spenser, Shakespeare, Bacon, Milton, and a host of others. In fact, down through a good part of the nineteenth century most of the great men of Europe and America were brought up on the classics; their modern counterparts in wisdom and style are not so numerous as increases in population and enlightenment might lead us to expect.

Today, in our very different world, the natural and the social sciences are of course separate realms. The humanities have lost history to the social sciences (though some historians maintain their allegiance to Clio), and have gained music and the fine arts. Philosophy is still counted as one of the humanities although the nature of most modern philosophy would seem to place it with mathematics and science. Humanists may regard divinity as an ally or an alien. Literature, as the most direct and comprehensive expression of human concerns and the most generally accessible body of material, remains central. Along with such internal changes there is a large fact that complicates discussion: that practitioners of the humanities fall into two different groups—scholars, critics, and teachers on the one side and creative artists on the other—a much more distinct cleavage, in spite of mainly common interests, than the mere difference in intellectual power between scientific explorers and scientific teachers. In this connection we may notice a recent phenomenon most conspicuous in the United States, the inviting of creative artists for prolonged visits or life-time posts in colleges and universities. Josiah Royce observed long ago that a philosopher was expected to spiritualize the community; but now that the philosopher often limits himself to semanticizing the community, that function has fallen to the humanist, and the artist—who may or may not be scholarly—is introduced to help spiritualize the academy as well as the community. Such minds may bring provocative, unacademic freshness to the teaching of their art, and their presence is a reminder that literature, for instance, is not something always em-

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balmed in fat anthologies but written by people who live among us and pay taxes.

Since no one, even if much more learned than I, could discuss all branches of the humanities in a few—or in many—pages, and since literature is, as I said, the most central and has the largest professional following, I shall stick mainly to it. Here a great and obvious change from the many earlier centuries must be registered at the start: that in the English-speaking world the ancient classics have been almost wholly replaced by English. The academic study of English has been a fairly recent thing; it used to be assumed that no one needed instruction in his own language and literature. Whatever the faults of traditional classical teaching (and they were often grievous), the great change—however inevitable in our changed world—has brought loss as well as gain. For one thing, it has not improved the English spoken and written by the educated; "the new illiteracy" is evident everywhere. On another level, there has been and can be no adequate substitute for authentic and active contact with the classical tradition, which has always been both a revolutionary and a steadying force.

Before we consider various modern approaches to literature it may be said that that word is not restricted to the purely imaginative, that it retains its humanistic breadth of meaning. Indeed the imaginative part of literature is perhaps smaller in bulk than the heterogeneous mass of prose, ancient and modern, which also comes under that head. Here the modern barriers that divide the humanities, the natural sciences, and the social sciences simply disappear, because works in all these areas may or must be accepted as humanistic classics if they fulfill certain conditions: they must appeal to *homo sapiens*, the general reader; that appeal must endure from age to age; and there must be special distinction of substance, form, and style—art, in short—even if the author's purpose was quite utilitarian. If such conditions sound vague, there is not much doubt in concrete cases, when time has done its sifting. But we are concerned here with imaginative writing, since that is what distinguishes literature from all other forms of thought and expression.

The study of literature has itself many areas and levels and consequently many diverse specialists. Some kinds of work carry on what was begun in antiquity and revived during the Renaissance, though their scope is now widely extended. There are many biographical and bibliographical tasks, the determination of authorship, of dates of composition, and so on. One prerequisite for serious

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study is the establishment of authentic texts, not merely of old writers like Shakespeare but of such moderns as Poe, Hawthorne, and Whitman. Of late years, it may be observed, the labor of collating texts has been much eased and accelerated by ingenious machines; and machines have likewise transformed the making of such useful tools as concordances. But one can only begin to suggest the variety and refinements of such primary tasks of scholarship; in themselves these may be less humanistic than scientific, though their ultimate object is not.

That ultimate object, as we all know, is to understand and interpret works of literature in their full aesthetic and substantive significance and to make them available to readers, to preserve and transmit our great heritage as a living possession. Whereas science means only the latest knowledge (unless scientists cultivate scientific history as a personal interest), great works of art are never dead or superseded; they remain not only alive but unique. The body of literature from Homer and the Bible to the present is, in the fullest humanistic sense, a timeless whole. On the other hand, the literature of Europe—not to mention the literatures of Asia and America, Australasia and Africa—comprises that of many countries, and this vast body of writing reflects the civilization, the beliefs, ideas, and manners, the language and literary modes of many times and places; and, though the very definition of a classic is that it transcends time and place, these facts of remoteness are initial barriers. The past, or rather a great many pasts, must be re-created, since, however relevant works of art may be to us in our time, they must first be understood on their own terms, as products of particular minds in particular settings. Indeed, as Lionel Trilling has emphasized, their very pastness is a part of their meaning for us. Unless we are willing to miss or misread a great deal, we have to use bifocal lenses; and such lenses mean every resource we can muster in the way of information, imagination, and disciplined intelligence.

During the several generations since professional literary scholarship began in the United States, there have been successive waves of distinct character. (Criticism in the nineteenth and the early twentieth century was largely of the impressionistic kind represented by Poe and Lowell and many others.) The first—and for a long time virtually the sole—scholarly method was derived from both the science and the literary theory of Europe and might be labeled genetic: this was the writing of literary history in terms of sources and influences, and such things were most clearly traceable

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in medieval and post-medieval literature. This prolonged effort accomplished much by discovering and ordering a mass of solidly factual data, but such literary history, though necessary and valuable, was more or less external and it led to revolt. The next phase, which began before 1920, was the history of ideas: religious, philosophical, ethical, social, political, scientific, aesthetic ideas. The history of literature was rewritten at a new depth, and such cultural history became an important discipline in itself; it has been still more important in enriching our comprehension of countless individual works.

But the history of ideas, like the older literary history, did not in itself carry any criteria of aesthetic value, since a mediocre author may illustrate ideologies or influences no less or better than a great one. And here the so-called "new criticism" stepped into the partial vacuum to concentrate on interpretation and evaluation of the individual work—usually though not always a short poem. This movement has done much to right the balance and keep the prime object of study before us, and it has greatly quickened insight into subtleties of texture, imagery, and tone. It has also revealed its limitations and, like the earlier approaches, it can be inadequate by itself. While these several methods have continued in operation, others have developed during the past forty years, especially through the impact of psychology and anthropology. What may be loosely termed the Freudian line needs no explanation—though its tendency to rely on formulas often needs correction. What may be loosely termed the Jungian line has been concerned with the working of archetypal myths upon the creative imagination and with the poetic language of symbols. The latest arrivals have been the structural linguists, who seem to promise much new light, though I confess that I have not encountered it—or perhaps have not sought it with proper zeal. Some other schools of thought, from the sociological to the neo-Aristotelian, must be passed by. These various approaches, or some of them, have stimulated fresh and more or less valuable kinds of perception; they have also yielded irresponsible fancies unchecked by historical knowledge and understanding.

This brief survey covers what has happened in English (including American studies, since their rapid expansion began). Nowadays graduate teachers may not be omniscient sages, and graduate students are often deficient in breadth of reading, in writing, and in foreign languages, but the requirements and aims of graduate study have changed enormously for the better. Bibliographical training, of

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the kind touched on above, is available for those who want it, but it is an instrument, not an end in itself. Graduate students, as eager human beings and as prospective teachers, are in graduate courses concerned entirely or almost entirely with the fundamentals of literature and ideas, with aesthetic and philosophic criticism based on substantial historical knowledge. This is a world away from the mainly dusty grind that older generations went through decades ago. Whatever the deep personal devotion to literature of the illustrious scholars of those days, the *mystique* of graduate study seemed to start from the assumption that mature students left behind them not only hope but any humanistic concern with man, life, and the meaning of literature (I speak of the tracts of desert, not of the oases). The titles of doctoral theses now written all over the country bear concrete testimony to the great predominance of interpretative, philosophical, and aesthetic criticism. What worries graduate teachers nowadays, along with a frequent consciousness of their own shortcomings, is the frequent inadequacy of preparation and capacity in graduate students, the several kinds of deficiency mentioned above.

Today, moreover, undergraduate courses, graduate courses and seminars, and a large proportion of the books and articles written by college and university teachers are all of a piece, a coherent progression in depth. Learning and criticism are not divorced as they used to be. The various approaches to literature which I outlined are all in simultaneous operation in literary departments. In going on with an account of the humanities, therefore, I see no reason to consider "research" by the most mature scholar-critics as something remotely and austerely different from what is done in undergraduate courses. The planets are all revolving at various distances from the same sun and receive varying portions of the same light, sometimes a bit refracted.

Whatever weaknesses or excesses there have been (and the natural and social sciences have their share of these), the total accomplishment of modern scholarship and criticism has been immense. If we cannot claim such revolutionary advances as science has made, we can say that at the present time the vast and varied literature of the past is far better understood in all its aspects than it ever was before. In the nature of the case there can be no final interpretation of the more complex works of art; as the history of Shakespearian criticism makes amply clear, some ages see and emphasize some elements, other ages other elements. Still, with all the cross-currents

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and eddies and occasional waterfalls, there is a general movement along or toward a central channel; as Shakespeare's name again makes clear, peripheral fluctuations do not affect the stability of the general pattern. One cause for misgiving is that this modern enlightenment—and the active interest in literature of the past that kindles the enlightenment—is so largely academic. Criticism in general, in reaching new subtleties of insight, has become a specialized esoteric preserve; there are very few American critics who can be said to address and be heard by the educated community in something like the fashion of Arnold or Sainte-Beuve. But the educated public does not seem to care much about criticism of any kind; if a biography of a literary figure tries to smuggle in critical or philosophical ideas, popular reviewers brand it as highbrow and heavy.

The most cursory survey of scholarly criticism is a needless reminder that, on the higher levels, it grows out of individual knowledge, reflection, and intuition. It cannot, any more than creation, be the result of teamwork. It is obvious also that important criticism is the product of maturity, that it must grow out of experience of life and wisdom as well as out of intellectual knowledge. A commonplace fact of scientific history is that many scientists have made their chief contributions at a very early age; for the humanist a corresponding accomplishment would be next to impossible. Also, whereas under similar conditions two or more scientists may independently and simultaneously arrive at a similar idea (like Darwin and Wallace), no two artists would produce anything like similar works of art, since the scientific discovery is not a distinctively personal vision and the work of art is. And of course "discovery" is not the aim of humanistic study. There is discovery of a kind, to be sure, and reinterpretation is continually going on, but the humanist's great aim is the achieving and sharing of the experience given by works of art. And the all-important thing about that is that the experience is an individual affair. Whatever insights may be held in common, no one person can respond in exactly the same way as any other person. When a scientist has a boldly imaginative idea, that idea is made completely and uniformly intelligible to other scientists; but the intuitions of a humanist are not fully demonstrable and cannot be transferred *in toto* to other minds—as indeed the original work of art may not have completely rendered its author's conception or yielded its full import to the best of critics. The inevitable degree of imprecision in the study of literature and the other arts may to the rigorous scientific reason count as a defect in the humani-

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ties; but most of the really important things in life cannot be measured.

The ultimate and obvious aims of literary study have already been indicated, but they may be put in ampler terms, though still with pragmatic simplicity. The raw human animal, more acquisitive, aggressive, and sensual than sensitive, needs to be civilized if society and the good life are to exist. The humanities are in their very nature the chief agents of the civilizing process, since they are the distillation of universal human experience. Through the senses, the imagination (both immediate and historical), the affections, and the critical intelligence literature and the other arts enlarge and enrich the individual's very limited experience and refine and discipline his sensibility and mind and character; and there are no other agents that perform these functions on both aesthetic and ethical planes (not that we read works of art for therapeutic reasons but that full enjoyment and assimilation have therapeutic results). We might think, for instance, of what a world is added to our imaginative and moral consciousness by *Hamlet* or *King Lear*. Moreover, since traditional religion has so largely lost its power, many people, young and old, find through the humanities their chief or only understanding of man's religious quest. The greatest works of artistic creation—and the greatest are essentially religious—provide a vision of reality that nothing else provides. Of course it cannot be demonstrated with graphs that John or Betty Smith, through responding to a work of art, became a person of richer imaginative and moral insight, of finer taste and wisdom and stability; but throughout all generations that has been an experience for some people. If it had not been, our individual and communal lives would be solitary, poor, nasty, brutish, and short.

2

It may be asked why, if the humanities do all this, our world is what it is, why we are not living in a utopia of peace and culture. To repeat an answer I once gave (an answer that drew a gibe from a sociologist), the humanities have always had to contend with nothing less universal and inveterate than original sin. This comprehensive generality may be translated into more specific terms because the standing of the humanities within the university is strongly affected by the cultural climate outside. Public indifference to the humanities has always existed, even in ancient Athens and Renaissance Europe, and Gresham's law operates in the cultural as well as

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in the monetary sphere. In our country, in spite of occasional splashes of publicity about the newsworthy aspects of the fine arts and the performing arts, the mass of the educated public seem to have relatively little interest in literature of the past. The sale of paperbacks is a not altogether reliable index to the amount of private reading done outside of college courses, and the interest of college students often seems to end with their last examination. While the humanities, creative or critical, require mainly the time and effort of individuals and not the huge sums that go into scientific research, their unique and fundamental value does need public understanding, respect, and support. A few people, including some scientists and even members of Congress, have urged active recognition, and the newly established Commission on the Humanities and a possible National Humanities Foundation may do something to awaken proper concern.

In addition to the philistinism that thrives everywhere, a special strain runs through the American tradition. (Some of the founding fathers were cultivated intellectuals, but nowadays they might not be elected to public office.) Puritanism (which had its intellectuals but had begun its anti-humanistic campaign in England), egalitarian democracy, the spirit of the frontier, belief in practical utility, and the conviction that the business of America is business have fostered distrust or dislike of "culture," of any use of the mind for intangible ends, of being different from the crowd. Only in the last few years—and because of the Sputnik, not intellectual reasons—has there been any general revolt against the pedagogical doctrine and practice that have dominated the schools in our century: "adjustment to life" instead of education and, among other things, the conception of literature as an attractive appendage to social studies.[1] One need not cite the familiar evidence of popular taste supplied by the mass media (which are not peculiar to the United States).

If the relative lack of zeal for the humanities among us is to be attributed to the nature of our society, one large heading under that vague phrase is the many-sided pressure of science. The dazzling achievements, the prestige, the practical value, and the high rewards of scientific and technological research are more than obvious. For decades the philanthropic foundations poured out oceans of aid for the natural and social sciences and a trickle for the humanities (of late years there has been a turn for the better). Government money flows into university laboratories for research in military technology. Reaching the moon seems to be more urgent

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than our many social and educational needs. Every spring and summer, when college graduates enter the job market, students of the humanities are at or near the foot of the salary scale, scientists of course at the top;[2] and, while philosophic captains of industry tell Commencement throngs of the prime need for humanely educated men, their personnel officers are hiring technical experts.[3] The undergraduate as well as the graduate study of science appears to be almost wholly professional[4] and leads directly to high pay and security, while the humanities are, by mundane reckoning, quite useless.

Since the functions of the humanities were earlier summed up in simple terms, I may say briefly what I understand to be the functions of the sciences. The investigation of the terrestrial and cosmic world and the human body and mind is an essential and noble fulfillment of man's quest for knowledge; the discovery and interpretation of scientific knowledge grow out of methods that are an essential part of a liberal education; and the uses to which such knowledge has been put have enormously affected every individual by improving the conditions of life in an infinite variety of ways. This we all know and believe. The social sciences may be described in corresponding terms: their material is the social, economic, and behavioral patterns of mankind in the mass. But to say that the natural and social sciences and the humanities all look toward the benefit of man is to obscure the basic differences among these disciplines and to allow the implication that imbalance does not matter much, or that the sciences, with all their glamor of modernity, have superseded the humanities and should now take over the guidance of mankind. The last implication is a matter of course for a number of people, for example, Derek J. Price, the historian of science: "Now that science has become the chief determinant of world civilization. . . ."[5]

The academic role of the humanities cannot be understood or assessed without reference to both the rightful role of science and the claims sometimes made for it as the supreme oracle of modern man. Of course some scientists and social scientists are earnest and vocal supporters of the humanities, but there is in the air enough extravagant one-sidedness to be disturbing. To quote a casual but suggestive utterance, an eminent social scientist probably spoke for more than himself when he said to me, " I suppose poetry nowadays is on the way out." One gets the impression that humanists—the special custodians of all the great literature and art that man has

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produced—can now be seen as laggards behind the triumphal march, as forlorn attendants in an empty museum.

This general attitude has been recurrent ever since Bacon and Descartes excluded poetry from the world of scientific reality. I should like to cite a few heterogeneous writers on science, as representative both of scientific thought and of notions of the humanities and science that one meets in various areas and on various levels. For F. S. C. Northrop[6] modern science is the infallible lawgiver in all things, and not merely Dante (his example) but all literature that makes serious use of beliefs and ideas not now scientifically valid is dead at its center. There can be no values except those determined by science; people's emotions have long been attached to mistaken ideas and scientific reason must correct these fatal vagaries. "Without the *Weltanschauung* of modern science," says a later writer, in *Science*, "no form of thinking, feeling, or reacting has validity today."[7] Even in our ultra-scientific world are any of us, scientists or humanists, moved by scientific principles when we examine ourselves (if we do), when we fall in love or face a moral dilemma, when we feel, think, and act as citizen, friend, son, brother, husband, father—in all the situations in which man lives as man and becomes the subject of literature? To quote a historian of science (who cites Henri Poincaré to the same effect):

> For neither in public nor in private life can science establish an ethic. It tells what we can do, never what we should. Its absolute incompetence in the realm of values is a necessary consequence of the objective posture.[8]

In regard to science and the nature of man one central kind of opposition is between optimists and pessimists. On the one hand, some look forward with high confidence to endless progress through endless extension of scientific knowledge. In spite of our oceans of ignorance, said Dr. Conant, "we can set no limits to the future expansion of the 'empire of the mind.'"[9] "No one," says Philippe LeCorbeiller, "can set limits to what science might achieve."[10] But other prophets of science tell us, with a sort of sadistic relish—one cannot say masochistic because they themselves are apparently outside the human race—that men are only lumps of impure carbon and water, links in a deterministic chain, nodes in a communication network. The first of these definitions of man is Lord Russell's old phrase; the third was used at a *Dædalus* conference in May, 1963, without, so far as I recall, any protest except from my unrecon-

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structed self. If a man is only a node in a communication network he obviously cannot be a scientist, much less can he ordain human values and destiny—though it would appear that his mental wiring can encounter a short circuit. We might remember that Adolf Eichmann, examined by half a dozen psychiatrists, was pronounced, according to the best scientific standards, completely normal; and he was a completely efficient node. A humanist would be happier with the high than with the low view of man, though he would like some qualifications and additions.

Sir Charles Snow's main object, humanitarian action on behalf of the hordes of people living in subhuman conditions, was more central in his second discourse[11] than in his first. But we remember his strange assertion that the second law of thermodynamics is about the scientific equivalent of a work of Shakespeare—as if the two were comparable except on the level of mere data of knowledge. A philosophic scientist, Dean Robert B. Lindsay, in *The Role of Science in Civilization* (1963), takes a broadly receptive view of the humanities, but even he can be myopic on a central point. Arguing (pp. 44 f.) that science includes value-judgments, he says that decisions have to be made among opposed scientific theories. But these are not value-judgments at all, unless the term is stretched out of recognition. They cannot be value-judgments unless the constituents of atoms and cells are moral agents whose motives and behavior are being scrutinized on moral grounds. This is the very *sine qua non* of literature, and Dean Lindsay is not the only scientist who misses the point. (What some behavioral scientists would say one need not inquire.) It is often said—by Dean Lindsay and others—that scientists must be grouped with artists because both use imagination to interpret data, but such a statement merely befogs the issue. The kind of imagination that interprets the non-moral secrets of the atom or the cell is completely different from the ethical imagination that explores the workings of human nature.

Two other witnesses, on opposite sides of the fence, may be mentioned. The late Aldous Huxley in his *Literature and Science* (1963) took a line that was very odd for the author of *Brave New World* (1932). He made a tour among the sciences in order to show the kinds of new knowledge the modern writer must assimilate and learn to use. Recalling what the nightingale's song had meant to Keats and Arnold and Eliot, he explained that the bird sings to warn other birds that it is staking out its time and territory for the consumption of caterpillars. This was not, as one might think, a spoof,

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but a scientific exposure of poetic fallacy—and totally irrelevant. On the other hand, Dean Barzun, in his *Science: The Glorious Entertainment* (1964), pictured modern man and civilization as thoroughly deranged by science and technology and the climate they have created. While the picture may be overdrawn, some reactions from the scientific establishment seemed to imply that the noted author was a brash schoolboy making faces at the teacher; the book shows, said one reviewer, what scientists are up against in presenting their case to the world (*New York Times Book Review*, April 5, 1964).

For a last witness on this general point we might hear a scientist of broad horizons, Loren Eiseley:

> Even now in the enthusiasm for new discoveries, reported public interviews with scientists tend to run increasingly toward a future replete with more inventions, stores of energy, babies in bottles, deadlier weapons. Relatively few have spoken of values, ethics, art, religion—all those intangible aspects of life which set the tone of a civilization and determine, in the end, whether it will be cruel or humane; whether, in other words, the modern world, so far as its interior spiritual life is concerned, will be stainless steel like its exterior, or display the rich fabric of genuine human experience. The very indifference of many scientists to such matters reveals how far man has already gone toward the world of the "outside," of no memory, of contempt toward all that makes up the human tradition.[12]

One might also quote Margaret Mead's remark—made in a different context—that nowadays "students of the humanities, as they lost their hold on contemporary developments in science, began to stress their monopoly of eternal values."[13] Miss Mead perhaps overlooked our long-lived contemporary, Plato.

The fundamental differences between science and the humanities are not at all the same thing as differences between scientists and humanists, but something may be said about the latter, since the questions are often confused and especially since, at the *Dædalus* conference of May, 1963, a distinguished group of members reported their verdict that humanists are irresponsibly ignorant and neglectful of science.

To speak first of imaginative writers, if by ignorance is meant lack of technical competence in modern science, no doubt the charge is justified; but can it be wisely lodged at a time when the mathematician and the physicist, the biologist and the chemist are said to have imperfect understanding of one another? If, however, the charge means unawareness of the implications of science, its

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felt effects on life and thought and sensibility, it may be considered quite unjustified. One central impulse in modern American poetry and criticism has been opposition to the mechanizing and dehumanizing of man and insistence on his human individuality. Even current fiction—which, to speak with limited knowledge, may seem to have acquiesced too readily in the doctrine of the lost self—might defend its obsession with sex on similar grounds: man or woman, feeling dwarfed into nothingness by a big, mad, technological world, is moved in desperation to declare "*Amo* (or some less reputable word), *ergo sum.*" Such feelings may be exaggerated, but they cannot be dismissed as merely ignorant, stupid, or neurotic; in some degree they are quite common.

Shakespeare knew nothing of the up-to-date science of his day; he accepted as facts or as metaphors a multitude of things that were not so—and such ignorance did not matter in the least. If it is said that that may have been well enough long ago but will not do now, we might remember that Robert Frost, for instance, though perhaps not overburdened with intellectual knowledge, was well aware of science and was not crushed into surrender of individual human dignity with all its responsibilities and hazards. T. S. Eliot holds religious beliefs which most intellectuals regard as obsolete, but Mr. Eliot's poetry is a very significant part of our culture; he was indeed the first or one of the first of modern writers to discern some dominant characteristics of that culture, in particular the mechanization of the human spirit. I am not pleading for ignorance or in any way disparaging science (which would be imbecile); but it seems to me deplorable and disastrous when scientific thinkers assert that there is only one kind of knowledge, one kind of truth: that of verifiable experiment and analytical reason.[14] Nearly all science of the past is now merely of historical interest; the literature of the past still speaks to us with a far more vital power than any scientific fact or idea commands. For a reminder of that obvious truth, this year 1964 is the four-hundredth anniversary of the birth of both Shakespeare and Galileo, but only one of the two is being celebrated everywhere (which is no reflection upon the greatness of Galileo).

As for the other community of humanists, the scholars, critics, and teachers, they certainly should know as much as they can absorb not only of modern science but of the whole history of science. No college teacher can deal with Donne or Milton or Pope or Shelley or Tennyson or many other poets, or with philosophers from Bacon onward, without dealing with science. In the last forty years

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or so literary scholarship has very fruitfully utilized—and even in many areas has written—the history of scientific ideas along with other ideas. And it is worth emphasizing that the many studies of science in relation to literature have come from literary scholars, mainly American, but not, so far as I recall, from scientists or historians of science; it seems to be assumed that the latter are either silent masters of literature or do not need to be. At any rate it is always the humanists who are charged with narrow ignorance; the charge gets its authority not from evidence but from repetition. We noted earlier the predominantly professional character of undergraduate courses in science, which are of small avail for humanistic laymen, though scientists are given to blaming young humanists for not taking more of them. College courses in the humanities could be similarly professionalized, but it is in the spirit of the humanistic tradition to keep them broadly hospitable.

3

We all agree that the humanities, the natural sciences, and the social sciences are essential elements of a liberal education, though we might not agree about respective proportions. However, it has long been recognized, not merely that the three kinds of knowledge have grown further apart from one another, but that even the internal unity of these composite disciplines has given way to heterogeneous disunity, to the multiplication of splinter groups which may be almost as much divided from one another as the original three. We may deplore this state of affairs, though there seems to be no way of replacing the innumerable tribes of specialists with a new race of polymaths. It is also fairly obvious that, while such minute specialization has greatly speeded up the advance of knowledge on all fronts, it has impoverished the individual specialists, in the humanities no less than in the other areas. The full magnitude of the price we pay appears if we look around our world. As W. H. Auden remarked a while ago, anyone is considered crazy and almost immoral if he questions the unlimited desire for knowledge. Knowledge, we know, is power, and the long history of man, viewed on its darker side, is a history of struggles for power and profit, public or private; and that is sufficient ground for affirming that the exercise of moral wisdom, which includes imagination and taste, is a function of man as man—as a human being and not as a researcher. As individuals, many natural and social scientists may have a larger portion of moral wisdom than many humanists, but in this matter

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disparities in individual endowment are irrelevant. The point is that the natural and social sciences in themselves are morally detached and neutral—they pride themselves on being so—and are not directly concerned with the acquisition of moral wisdom. The intellectual symbol of our time is not man thinking and feeling but a computing machine.[15] The non-moral nature of science is such that it can be and always has been used for both the benefit and the destruction of man; and in our age the destructive power has outdistanced everything else. One by-product of sociology's natural concern with averages and dominant patterns has been the translation, that is, the mistranslation—notably in pedagogical doctrine—of descriptive norms into positive ideals of uniformity and mediocrity.

Thus, as we have observed already, to many people it has appeared, with or without reason, that the sciences have tended to reduce individual man to a node or a statistical cipher, to make him feel a loss of identity. And, as we have also observed, it is in the creation of and response to literature and the arts (and in the ordinary personal relations of living) that human individuality—in the sense of total being, not merely intellect—is precious. Whatever the manifold deficiencies of humanists, the humanities in themselves are there to provide aesthetic, imaginative, and ethical experience; and the sum of individual experiences forms a large part of the more or less ordered pattern we live by, however shaken it is said to be in our time. The development of such experiences and such discipline is the whole reason for the existence of the humanities. (I am not speaking here of the varied motives of creative artists but only of their audience.)

That is why it must be insisted that the humanities are the most basic of the three great bodies of knowledge and thought. I see no use in large vague pretences that the natural sciences, social sciences, and humanities are moving along convergent roads toward eventual unification. They are essentially different in origin, methods, and aims, and no spacious and specious generalities can gloss over the differences. In the old medical theory of the four humors, the body was healthy if the humors were in balance and unhealthy if one or other was present in excess. In our time the sickness of the cultural body has many causes, but one is surely the conspicuous excess of trust in the natural and social sciences as the sole or the main arteries of valuable truth and wisdom; and there seem to be few signs of any return to health. We may indeed reach a point in our new Dark Age—at moments one may wonder if we have not

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reached it already—where the literary creations of saner and nobler ages can no longer be assimilated or even dimly apprehended, where man has fulfilled his destiny as a mindless, heartless, will-less node. Meanwhile, no scientific problem is anywhere near so urgent as the preservation of individual man and his humane faculties and heritage.

I should like to end with utterances from three distinguished humanists, an architect, a scholar, and a poet. In a speech at Williams College Walter Gropius said:

> The vast development of science has thrown us out of balance. Science has overshadowed other components which are indispensable to the harmony of life. This balance must be reestablished. What we obviously need is a reorientation on the cultural level. . . . This is the century of science; the artist is only a luxury member of society. True art is doomed to languish as long as science is supposed to have the only answers for our predominantly materialistic period.[16]

In a valedictory after his retirement from Harvard, Howard Mumford Jones, carrying on the Renaissance ideal of "virtue and good letters" and manfully opposing some fashionable clichés, affirmed that humane teaching must lead oncoming generations to ponder and accept "the changeless meaning of the three most powerful words in any dialect—justice, virtue, and love; concepts that arise out of history in spite of the fact that, or because, history too frequently denies them."[17] On the same occasion Archibald MacLeish, also retiring, said:

> For only in literature—in the arts—in poetry—which contains the arts—only in poetry does *man* appear, man as he really is in his sordidness and his nobility. Elsewhere in the University man is a clinical specimen, or an intellectual abstraction, or a member of a mathematical equation, or a fixed point in a final dogma. Only with us is he himself—himself as Swift smelled him and as Keats saw him—himself in all his unimaginable—unimaginable if literature had not perceived them—possibilities.[18]

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2. A summary report by Fred M. Hechinger, *New York Times,* June 9, 1963.
3. Richard Schlatter, *University* (Princeton: Princeton Univ. Press), Fall, 1961, No. 10.
4. Ernest Nagel, "The Place of Science in a Liberal Education," *Dædalus*

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(Winter, 1959), p. 63. Gerald Holton has pleaded for more and better courses in science for non-scientific students in "Science for Nonscientists," *Teachers College Record,* 64 (1963), pp. 497–508.

5. *Teachers College Record,* 64 (1963), p. 531. Some representatives of various attitudes are cited in my next few paragraphs.
6. F. S. C. Northrop, *The Logic of the Sciences and the Humanities* (New York: Macmillan Co., 1947).
7. Joseph Gallant, *Science,* 125 (1957), pp. 787–91.
8. C. C. Gillispie, *The Edge of Objectivity* (Princeton: Princeton Univ. Press, 1960), p. 154. For similar views, cf. the scientist, Hiram Bentley Class, *Science and Liberal Education* (Baton Rouge: Louisiana State Univ. Press, 1959), pp. 84–85, and the humanist, Moody E. Prior, *Science and the Humanities* (Evanston: Northwestern Univ. Press, 1962), pp. 17–18, etc.
9. *Modern Science and Modern Man* (New York: Columbia University Press, 1952), p. 111.
10. *Dædalus* (Winter, 1959), p. 171. I make special use of this issue because its subject, "Education in the Age of Science," is highly relevant and because such a symposium is handy for readers of this journal.
11. "The Two Cultures: A Second Look" (London: *London Times Literary Supplement*), October 25, 1963.
12. "An Evolutionist Looks at Modern Man," *Saturday Evening Post* (April 26, 1958), p. 122. I must add the stirring and disturbing paper by Dr. Eiseley, "The Illusion of the Two Cultures," *The American Scholar* (Summer, 1964).
13. *Dædalus* (Winter, 1959), p. 141.
14. E.g., Ernest Nagel: "These [poetry, painting, and music] are all important and instructive forms of experience. But since nothing is stated by these objects in propositional form, in no intelligible sense can they be regarded as conveying truth or falsity. . . . In short, the contention that the humanities employ a distinctive conception of truth and represent a mode of knowledge different from scientific knowledge seems to me to be the consequence of a failure in analysis." *Dædalus* (Winter, 1959), pp. 69–70. A layman might ask how one verifies the proposition that all truth is propositional—or is it simply a dogma?
15. Cf. P. LeCorbeiller: "Advances that have taken place in the last few years in the widely differing fields of automatic computation and of biochemistry will bring as vast a social revolution as did the steam engine, and they will have a greater philosophical impact than did evolution." *Dædalus* (Winter, 1959), p. 174.
16. *New York Times* (September 23, 1963).
17. *Harvard Alumni Bulletin,* 65 (1963), p. 309.
18. *Ibid.,* p. 310.

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NOTES FROM THE ACADEMY

THE ANNUAL ritual of university commencements provides an occasion for major speeches. The address given in June 1964 by Julius A. Stratton at the Massachusetts Institute of Technology is, in the opinion of the editors, a document which merits wide circulation. We are pleased to print the address exactly as it was delivered by Dr. Stratton at the Massachusetts Institute of Technology Commencement on June 12, 1964. When this issue is published next year as a book by Houghton Mifflin Company, it is our hope that Dr. Stratton will contribute a major essay. He may at that time choose to expand certain of the remarks which he makes here.

JULIUS A. STRATTON

Commencement Address, Massachusetts Institute of Technology, June 12, 1964

THIS IS the first time in forty-two years that the President of M.I.T. has been called upon to deliver the Commencement address. I am immensely honored. Fortunately also I am untroubled by superstitions, for the last occasion of this kind on our campus ended in a terrible downfall.

By chance that was also on a twelfth of June. The Class of 1922 chose the Great Court for their Commencement exercises, and some two thousand people gathered under an enormous tent in the place where we shall lunch a little later on. That day was bright and clear, but during the morning the wind began to blow. And just as President Elihu Thomson, over the sound of flapping canvas, launched

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into his words of exhortation to the seniors, a tremendous gust struck the tent. The outer poles cracked, and slowly the roof began to settle down upon the heads of the audience. With flying robes and skirts, the faculty, the students, and their parents made their way out safely; and on the steps of the colonnade, under the dome, diplomas were finally delivered in delightful confusion.

Only seldom does an orator suceed in bringing down the house —and almost never at Commencement time. Today I hold out no such expectations. In this great structure, which for some bizarre reason is called the Cage, you may feel secure.

And now, in a more serious mood, I speak to you, who are about to receive your degrees, not as a transient visitor on a strange campus, but as one who out of the experience of many years at M.I.T. has learned at firsthand what it means to be a student here. You have worked hard for this moment. I know the pressures that have been upon you; the seemingly infinite demands upon your capacity to learn; and the tremendous pace set by a quality of students that constantly challenges the faculty. I believe I know, too, something of the hopes of your families, of their pride in your achievement, and of sacrifices that have made your education possible. You have good reason to be proud this morning—all of you.

You came to us out of a most extraordinary diversity of origins and backgrounds. There is hardly a state in the Union which is not home to some of you, and you represent countries in every part of the globe. You have grown up in many faiths and traditions. You have known both wealth and poverty. You have attended small schools and large, public and private, in country districts and in great cities.

Yet for all these differences, you brought with you a certain basic community of interests and abilities. You were moved by much the same hopes and ambitions. Some of you were directed toward engineering or science; others toward architecture, toward economics or political science, toward psychology or management. But all of you, I suspect, shared the same concept of what M.I.T. stands for in the world today and viewed in the same light the role of science and technology in human affairs. It is upon that role, and how it is changing, that I should like to speak this morning.

Within the infinitely complex network of intellectual, emotional, and spiritual forces that make up this strange body we call mankind, one may discern two primitive impulses that trace back to the beginning of time.

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The first is the desire to understand—the passionate quest for knowledge for its own sake—about the stars, about matter, about living things.

The second is the urge to do, the drive toward action and mastery of our physical environment.

The systematic interpretation of nature into a framework of law we call science; the effort to convert pragmatic experience and understanding to useful account is engineering.

For countless centuries the quest for knowledge through science has been moving forward, slowly gathering momentum, while the engineer has provided shelter, assured our supplies of food and water, built our roads and bridges, and created our massive industrial technology. And now, suddenly—almost within your own generation—the whole sweeping line of advance seems to have taken fire. In some strange unforeseen way, we have come to a critical threshold, beyond which the forces of technical progress appear to be self-sustaining. The processes of discovery, invention, and production feed upon each other. In every domain of the physical and biological sciences, there is a bursting out into new fields and new theories. The translation of ideas into action is taking place at an ever-accelerating pace, so that the functional line of demarcation between scientist and engineer has almost vanished. From the factories and commercial laboratories of our country pours a mounting stream of new products, new versions of old devices—from jet airplanes to transistor radios, from nuclear reactors to household appliances, from a multitude of new drugs to synthetic building materials. We are at the point of being overwhelmed by the very bulk of our accumulated information, bewildered by the diversity of our manufactures. And we are failing today to assess clearly the implications of these developments for tomorrow.

Yet through this maelstrom of scientific and technological enterprise runs the almost mystical conviction that somehow every technical advance will contribute ultimately to the good society. Every responsible physicist believes intuitively or subconsciously that each new insight into the structure of matter will stir someone else—some engineer—to the development of a useful piece of hardware; and every engineer, in turn, expects that each new product or service will in some way add to our health, comfort, and material well-being.

There is nothing new in this idea of technology as the driving force of progress. It is an idea that took form during the Enlighten-

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ment of the eighteenth century and emerged from the Industrial Revolution of the nineteenth as a well-defined philosophy. Our own M.I.T. has its historical roots in that concept of the usefulness of science. Nor is there any need for me to demonstrate to this audience by examples how the advance of technology has improved the material condition of mankind.

Yet for all my own faith in and dedication to the work and methods of science, I do not believe that we can any longer afford to take such a thesis for granted; and I fear that a blind confidence in the inevitable good of material progress can lead only to disillusionment. The stupendous revolution of the twentieth century is doing more than adding theories, data, and apparatus to the accumulated store of the past. It has provided an entire new dimension to human affairs on a total change of scale.

To use words that you are particularly well qualified to understand, science, technology, and society now form a tightly coupled system. Each new technical advance adds a component to that system. In years gone by we have isolated these components and assessed their usefulness in terms of a specified purpose. We measured the value of a military weapon solely by a military requirement; a new drug by its immediate effectiveness in dealing with a particular pain; a new highway simply by the number of cars it carried; or a chemical waste disposal plant by the interests of local inhabitants. But now, because such components are coupled into an immensely complex system on a huge and massive scale, it is only by an examination of the impact upon society as a whole that we can pass judgment on the degree of progress.

To draw upon a biological analogy, I am saying that we must advance from the anatomy of components to the physiology of the organic whole—which indeed is now the society itself. One may prescribe an aspirin for a headache or build a turnpike to ease a traffic jam. But the headache may be merely an isolated symptom of a deeper disorder—a disease that may be identified only by a diagnosis which itself is the product of many specialists working together.

And so, too, our society—the body politic—is subject to old, chronic disorders and to new ailments. These diseases of the system are emerging in increasing number; and we must be courageous in recognizing that they are themselves the by-products of our highly technological environment.

Consider the transformation of our cities—the physical and so-

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cial degradation of large areas—the loss of serenity and beauty. We have never before produced so many cars or such fast airplanes; yet transportation in the United States is rapidly approaching a point of crisis. The shift to automation in industry is accelerating and will have profound effects upon the character of our labor force, upon its training, and upon its security. We are polluting our air and our water. The pesticides which we are employing on a mounting scale are a boon to agriculture and a threat to the remainder of our natural resources. We find extreme poverty in the midst of affluence. The problem of the economically deprived citizen, be he black or white, is one of training and education to cope with a highly technological and rapidly changing society.

These are but a few examples. I could cite many more—all too large, too complicated, too sophisticated to be conquered or even arrested by sporadic investigations and isolated research projects. Of course science has generated these problems, and we can be equally confident that science can help us to alleviate and resolve them. But our efforts must now move to a higher plateau. We can no longer afford to nibble away piece by piece at the problems of the modern city—of transportation—of underdeveloped economies —of automation—or of disarmament. We indulge excessively in uncoordinated conferences, surveys, and studies that on the whole are highly unproductive. Our ailments are vast and complex, and they will yield only to planned, collaborative attacks focused on clear objectives and leading to concerted action.

One of the charges that has been most commonly leveled against science is that progress is leading increasingly to the fragmentation of knowledge and the proliferation of a multitude of specialties. But these great new socio-technical problems and the systems they represent are now also generating strongly countervailing forces toward new unities, bringing together many different resources, and giving rise to a new synthesis of knowledge. For in every instance, success will depend upon the joint contributions of physical and biological scientists, of economists and political scientists, of engineers and architects, of historians and philosophers. The task of articulating or welding together these components of learning into systems of understanding offers the highest intellectual challenge of our time.

As I have reflected on these matters—as I have pondered about how all this is to be accomplished and where—it has seemed to me that there exists nowhere at the present time any one institution

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or specific kind of organization which is in a position to undertake alone this monumental task. There is to my knowledge no single agency of government which has the necessary diversity of resources and the freedom of action. By their very character these problems lack the motive of profit which is the essence of private enterprise; and because they lead inescapably from the intellectual domain into the field of action, they present definite risks and perils for the university.

And yet it is only within the framework of the modern university that one finds the wide range of interests, a common ground for the exchange of ideas, a forum of discussion for scholars who draw upon the arts and the humanities as well as upon science and engineering. This is particularly true of an institution of the character of M.I.T. I do not believe that we can escape the responsibility of taking part in the solution of problems which touch most deeply upon the total welfare of our society. In the synthesis of knowledge —as well as in the creation of new learning—we must lead the way. And though at times we shall find ourselves drawn more deeply into the main stream of contemporary affairs, we shall continue in the process to educate with relevance to our age. This has indeed been our historic mission.

I have wanted in these few remarks this morning to give you a broader and perhaps a new insight into the changing role of science and technology. The essence of this change lies not so much in the expanding scale of discovery and application; it lies rather in the complete penetration of science and technology into every domain of human affairs.

But principally I want you to understand that these developments have brought a new order of responsibility for the consequences of progress to our society as a whole. Some of this responsibility falls upon our institutions—upon government, upon industry, and upon the university. But in a free society the burden of obligation rests ultimately upon you as individuals. You are in a superlative position to meet the technical challenges of our day. But you owe something more to the common account. You must be ever mindful of your own deepening responsibility, both to the profession you have chosen to follow and to the society which will look to you for positive action. Your life will be productive in proportion to the goals that you achieve; rewarding in proportion to your commitment to all that is of value; and full in the satisfaction that the world will be better for your efforts.

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POSTSCRIPTS

THE *Dædalus* format permits publication in two stages. In the first, essays appear in the Journal itself. In the second, they are published, together with newly commissioned articles, in hard-cover book form. Occasionally, an article arrives too late for publication in either place, but its importance is such that the Editors see a great advantage in making it available to *Dædalus* readers. The article "Europe's Identity Crisis: Between the Past and America" by Stanley Hoffmann falls into that category. We are pleased to publish it here. It will also appear in several of the foreign-language editions now planned of the *Dædalus* volume entitled *A New Europe?*

STANLEY HOFFMANN

Europe's Identity Crisis: Between the Past and America

EUROPE TODAY is prosperous and disunited What it will be like tomorrow remains a mystery—both because disunity results from conflicting assumptions about Europe's future, and because prosperity tends to become an end in itself. Europe today has no clear identity, no profile other than that which a process of industrialization and a process of economic integration have given it. Europe today has no sense of direction and purpose; this essay laments its absence and calls for its rebirth.*

* In this essay, "Western Europe" refers to the so-called Six; the problem of Britain would require a separate analysis. Many of Europe's postwar developments discussed here have affected England also—and yet Britain's absence

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But one cannot be asked to choose his future unless it is first established that freedom of choice exists. The point of this essay is to show that Europe's freedom of choice has been destroyed neither by the advent of industrial society nor by the evolution of world affairs. There is no "determinism" of the economic and social system. Nor has a new "European identity" been fully shaped by the European communities. And yet many Europeans behave as if the future course of Europe had been set, and many Americans believe it too. Whereas the former are divided between happy resignation and bitter protest, the latter show pride and some complacency. There is no justification for either of their attitudes.

One factor is involved in both processes which many see as inhibiting Europe's freedom: Europe's relationship with the United States. This essay is an attempt to explore this relationship. Since 1945 it has been one of double dependence, internal and external. The internal dimension of dependence has been called "Americanization." European societies have been transformed by the eruption of the age of mass consumption. Of course other terms, such as modernization or industrialization, could be used; but "Americanization" for several reasons applies. It was the United States which preached the gospel of prosperity and which goaded the Europeans into creating the institutions that would usher in the new age. It is the United States which serves as the model for the "new Europeans"—the businessmen back from productivity tours, or the shrewd fabricators of mass culture, or the party propagandists who look for inspiration on Madison Avenue, or the scientists and social scientists who envy, learn and use American theories and techniques. It is in the context of liberal policies, rather than in a framework of totalitarianism and public property, that the economic and social revolution has taken place. The external dimension shows dependence in a less intellectual and far more classical sense. For the first time in modern history, Western Europe has become a stake in the international competition, and its role in the world has been reduced to that of a protectorate of an extra-European power. To be sure the protector has been benevolent, often self-denying and inordi-

from the so-called "European experiment," Britain's "special relationship" with the U.S., as well as the important differences between the recent past of England and that of the continental countries (i.e., the illusion of victory vs. the humiliations of defeat) make of Britain's case a special one. Indeed, were "the Six" more capable of defining a new European identity, Britain's painful hesitations about its own might be overcome more easily.

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nately generous; but this changes only the edge, not the essence, of the relationship. Thus, were it not for America's presence, one could hardly speak of Western Europe as an entity: to the extent to which Europe has a face, it is a borrowed one.

It is therefore not surprising that a mirage should have bloomed in the vision many Americans and Europeans have of Europe's future. It is the picture of a European society increasingly similar in its institutions, behavior and values to the "American model" of industrial society; of a European entity gradually growing into a federation, speaking in world affairs with a single voice, which, because of the very identity of Europe's outlook and interests with America's would use orthodox "Atlantic" language. This essay, in discussing Europe's freedom of choice, tries to show that such a picture may well be a mirage. Internally, an "American" Europe need not be Europe's future. There are enough differences between Europe's and America's industrial societies to feed and to preserve a separate identity—if the Europeans so desire. Externally, an Atlantic Europe is not likely to be Europe's future; but there is a choice between a "European" Europe if the quest for a new European role in the world succeeds and no united Europe at all if it fails. Thus, as much as a call to the Europeans, this essay pretends to be a warning to Americans. Being free, the former ought to think and act for themselves. Being different, the latter should not expect Europe to become America's twin.

I. *"Americanization" with a Difference*

The "Americanization" of Western Europe is not a mere cliché. It is a fact recently documented by *Dædalus*.[1] Economic expansion, higher wages, a peasantry whose numbers dwindle and whose production grows, classes that are less different from and feel less hostile to each other, a "service class" on the rise, a drive for mass education, the "end of ideology" in political life, intellectuals reconverted from tragedy to expertise, collective bargaining with the participation of "technocrats" instead of deliberations by a political class of leisurely generalists: all of this does indeed make Europe much more like the United States. Had *Dædalus* included in its issue studies of the new public role of the Catholic Church, the transformation of the family, the phenomenal progress of "mass culture," it would have become even more obvious that Tocqueville's prophecy of the democratic age has come true at last. What Toc-

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queville did not realize was that egalitarian society would triumph in Europe only after the spread of material prosperity. Nor did he see that those voluntary associations without which he thought liberalism would perish from the twin dangers of social conformity and political centralization would in fact grow out of an industrialization that proceeds in the framework of liberal democracy.

And yet industrial society in Europe may remain quite different from America's, for a reason Tocqueville would have well understood. He knew that a single type of society can be ruled by opposite types of regimes. He knew that the face of the polity in the democratic age is shaped by the relations between classes and the state in the predemocratic age. He would have realized that Europe's current emancipation from its past cannot help being shaped by that past—a past entirely different from America's. There are three areas of significant differences. First, there is the problem of the *polity*: America's industrial democracy was a creation; Europe's industrial society involves a conversion of the previous order. Second, there is the problem of *historical conscience:* the United States, on the whole, is at peace with itself; Europe's transformation entails a catharsis. In each of these areas, America's originality is double; not only does the American experience diverge from Europe's as a whole, but America's is single, whereas Europe's is fragmented into separate national experiences. Finally, and as a result, there is the problem of *beliefs.* America's growth is rooted in a creed; Europe's revolution unfolds amidst the repudiation of past creeds.

CREATION VS. CONVERSION

Tocqueville saw the United States long before the age of mass consumption. Yet much in his description remains valid. Obviously, industrial society in America has been affected by the network of pre-existing institutions, laws, customs and values more than it has affected this network. The ideal type of advanced industrial society or that of capitalism tells us little. They are liquids which take the shape of whatever vase they are poured into, although they give their color to the vase. What matters in America's case—it has become a cliché to say so—is that industrialization proceeded in a society already democratic, freed by its revolution not from a previous aristocratic phase but from outside tutelage, and constantly

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confirmed in its essence by new waves of immigrants. Moreover, industrialization expanded in and benefited from a single national framework, which survived the great test of secession. In both respects Europe's past has been different. It plagues the present and mortgages the future. The industrialization of nations deeply marked, socially and politically, by their "predemocratic" stage and by their rivalries means the laborious breaking down of class barriers and borders. Consequently, on the one hand they are not "like America" *yet*, for the task of conversion still entails both much destruction of the old and the tough resistance of major residues. On the other hand, the new Europe might not be "like America" *ever*, for the task involves innovations which either confirm old differences or create new contrasts with the United States.

What is being destroyed in Europe's social structure would not deserve being mentioned in a study that focuses on what is likely to keep Europe lastingly distinct from the United States, were it not for three reasons. One has to do with the difference in social structure and values; the elimination of various groups whose economic or political function has disappeared has left a residue of bitterness not only among the victims but also among other groups who shared the values if not the social position of those victims. The second reason has to do both with the difference in social structure and with Europe's fragmentation into separate states; the process of elimination has put new strains on already fragile political systems, for it is much more troublesome to deal with angry farmers, displaced miners or depressed areas when they represent a large fraction of the population or of the space of a country than when they occur in the "wide open spaces" of a sparsely settled continent. The last reason has to do with national differences in Western Europe; the destructions and dislocations brought about by economic change have affected these nations unevenly, depending on the degree of development they had reached at the start of the process. Thus Germany, despite the influx of refugees, has suffered least; France has had serious troubles with shopkeepers, peasants and workers made jobless by progress; Italy is the country in which change has entailed not only "the disintegration of agriculture and of traditional rural communities" through a huge rural exodus,[2] but also a problem of regional imbalance of enormous proportions. Despite the common movement toward industrialization and the efforts made by European communities to ease the journey, the fact that each nation has had to deal with its own

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incidents and its own casualties of progress has strengthened separateness just as it was being undermined.*

It is not only Europe's social structure that is affected by destructions. Partly as a result of those just mentioned the load which Europe's political institutions have had to carry has crushed one vital organ: parliament. The decline of a body that symbolized one important difference between Europe's and America's political systems has, however, not made for any rapprochement. In Europe's cabinet system, parliament was supposedly the fount of all effective and responsible power in contrast with the United States Congress, handicapped by the separation of powers. Today, parliament's share in decision-making and its role in supervising the execution of decisions are far smaller than the share and role of Congress. The dispossession of parliament not only by the civil service and interest groups but also by the executive has been much greater. Congress is now protected by the strict separation of powers, by the fragmentation of the bureaucracy, and by the very looseness of American parties. Whenever the party system worked, parliament's decline has occurred because of the control exerted over the majority by the cabinet or by the majority party's ruling organs; where the party system has failed (i.e., in France), parliament has been demoted to a position legally much narrower than that of the United States Congress. Here again, differences among the Europeans compound the difference with the United States. Outside France, parliament, having lost its role, at least preserves its "myth"—that of the body that speaks for the people and that can overthrow the cabinet. In France's hybrid political system, the president plays the part of the people's voice and combines the advantages of a chief executive in a presidential system with those of a cabinet leader in a parliamentary regime—at the expense not only of parliament's position but also of its reputation. Outside France, it is the strength of the parties that has weakened parliament in parliamentary regimes. In France it is the very weakness of the parties which has brought the demise of the parliamentary regime altogether and which is being perpetuated by the practice of so-called "direct democracy."

Destructions and resistance both mark the attempt at transforming the educational system. Nowhere is the difference between the

* The difficulties encountered in trying to define a common policy on energy for the Six are partly explainable thereby.

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creation of one national industrial society and the conversion of a variety of "old" national societies into a more democratic one so obvious. The need to abandon a system of secondary schools and universities which were the shapers and guardians of societies in which elites were few, access to the elite was restricted and authority was hardly democratic is widely recognized. Most European writers on the subject agree that the new society requires leaders and executives, technicians and bureaucrats in far greater number, that the old curriculums and structures are obsolete, that the new schools ought to be training centers for teamwork and imaginative cooperation. And yet the result of their efforts is not likely to resemble the United States system of education. The United States was able to let its system grow; the Europeans are obliged to let their old one either continue or collapse because they cannot oblige it to adapt. The resistance of the old structures and of the teaching personnel to change is fierce—in the one sector of society where no reform (however much determined from the top, by fiat, or supported from below, by the rising masses) can be adequately carried out without the help of the very men and women whose whole philosophy is being challenged and who are still in charge of training their own successors. Thus the educators try to block reform either by opposing change altogether or through the familiar device of rejecting anything short of perfection. As a result, the reformers are forced either to back down, delay or compromise, or else to try to win by indirection: by undermining that which cannot be persuaded to reform, by initiating new types of school programs or institutes which besiege or submerge the old establishments. The outcome, in either case, is a fearful mess. The *status quo ante* is obviously impossible, but chaos is not necessarily creative. The new structures and the new personnel suffer from a lack of prestige and a frequently makeshift quality. Here again, national differences complicate the matter. There is a great deal of educational planning in France, none in Germany. Resistance to change is greater in Catholic countries, where the religious schools are particularly devoted to the values of the old society. The Belgian problem has been compounded by the Walloon-Flemish split. Thus the prospects of a unified response to the crisis are slim.

Of course, it can be argued that in the United States also there is a crisis, and that the responses and forms of experimentation are multiple. But whereas it is not impossible to improve and diversify the training of elites within a system of mass education, the

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forceable transformation of a narrow, rigid, coherent and largely successful system of elite education into a democratic one is a heroic and infinitely more controversial enterprise. In mere financial terms it requires extraordinary budgetary transfers and an entirely new attitude on the part of businessmen or foundations, whose role in education has until now been almost nil. Furthermore, there is a major difference between the experiments of a fantastic number of school districts and state and private colleges and universities, and the laborious decisions taken by a small number of ministers of education in the light of their national situations.

The resilience of old patterns of behavior is also visible in the whole area of class relations. The way in which social groups face each other in the new society remains deeply marked by the past history of social and political contests. To be sure, recent European writings show a longing for the "American model" of group politics, democratic authority, face-to-face discussions and compromises. But the model is not really relevant. Whereas America is a fluid society, Europe remains a set of sticky societies. Mobility within each and between them is less practiced and less highly valued. Such viscosity preserves past obstacles to social harmony and even to further economic development (for instance, in keeping the size of enterprise much below the "American model"). Moreover, despite growing prosperity, inequality remains a major social and political issue: first, because everywhere in Europe the differences in living conditions between the rich and the poor are still huge (the access of the latter to higher education and power is far from assured); second, because the underprivileged groups' attitudes toward inequality remain shaped by the European tradition of global protest against and challenge of the "established disorder"; third, because the discontent and the expectations of the underprivileged are far more focused on the state than in the United States; finally, because of considerable variations from nation to nation. Thus, although one can rightly speak of a moderation of the class struggle and of a decline in revolutionary messianism, the long record of contests between the workers and the upper classes and the constant role of the state as a stake and a force in the struggle introduce a lasting distinction between the American and the European cases. In every European country the workers' organizations—unions or parties—are more concerned with the global economic development of society and with the role of the workers in the management of enterprises than are those in the United States. It may well be that

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this concern now expresses itself in requests for "participation" instead of the old demands for revolution, but even this points to a difference in scope and temper between America's well-established reformism—more fragmentary and more placid—and Europe's new one.

If one examines not merely the political expression of social grievances in the "new Europe" but political behavior in general, one reaches the same conclusion: despite real changes, old reflexes resist. Ideology in politics (and in the writings of intellectuals on politics) may be declining, in part because of the moderation of the class struggle, in part because of a reaction against the ideological excesses of "secular religions," in part because of the increasing irrelevance of "isms" that grew out of the conditions of preindustrial society. But proneness to ideology (in the sense in which a weak body is prone to diseases) and attachment to old ideological symbols persist, even if the symbols have lost much of their "objective" content. Thus in France and in Italy neither the rise in the standard of living within societies still marked by grave injustice nor the relative decline of groups that provided the bulk of the support of the Communist party (proletarian workers, landless farmers) have seriously reduced the electoral strength of the Communist parties. For where ideology was strong it was never exclusively related to the stage of economic development. There simple discontent still expresses itself in ideological terms, and events unconnected with either the old class struggles or the old stable constellations of political doctrines still provoke ideological reactions. Thus in France the divisions created by the new postwar issues—the Cold War, decolonization, European integration—have been anything but moderate, and the attitudes of the opposed factions anything but pragmatic.[3]

The resilience of old forms of political behavior and traditional styles of political argument explains in large part why the European political problem continues to differ from that of the United States. The American issue is the efficiency of institutions that are stable and legitimate. The issue in the three largest countries of Western Europe is the stability and legitimacy of their institutions. Neither in France nor in Italy nor in Germany are they so secure that they could survive a prolonged period of inefficacy. In none of those three countries could allegiance to the Constitution be the symbol of national integration. Before their alleged death, the ideologies of yesterday left deep scars on the institutions.

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Finally, the weakness of representative government, the residues of ideology and the persistence of old habits in class relations all contribute to the preservation of two important differences between Europe's and America's political life. Divided polities in which the state has played a major part in class conflicts and in which a core of efficiency and continuity has been indispensable have produced professional civil services with traditions of their own and also with a natural tendency to persist even if the conditions of their earlier rise and role have changed. The bureaucracy of the European state has preceded the age of democracy; its power and centralization create a problem of control far more acute than in the United States, with its mixture of often rather low-grade professionals and temporary recruits from business or the universities, and its fragmentation of bureaucracy into countless agencies and services. Moreover, the strength and staying power of the civil service continues to limit the scope of representative government, that is, to curtail the chances of what one now calls "participation." Tocqueville is again the more relevant reference: Europe's politics still suffer from that radical distinction between "us" and "them," the subjects and the rulers, the citizens and the state, which has been perpetuated by centuries of absolutism, authoritarianism, and even liberal politics that entrusted the polity to men of knowledge and order only, and thus served the interests of some classes alone.*

Indeed, this is a difference which has been confirmed by one of the major innovations of the new Europe. There has been an increase in the scope of the state. The Europeans' conception of public functions has radically expanded in this century, whereas the Americans' has changed but little—there is a gap between the practices in the two areas, and an even greater one in their "public philosophies." In part because of the differences in the background—greater poverty, the ruins of the war, the need both for reconstruction and for regulation of the sudden boom—Europe has allowed more overt intervention of the state in economic and social affairs, has shown greater concern for welfare and balanced growth, has repudiated uncontrolled laissez faire and has tried to avoid the scandal of public squalor in the midst of private opulence. Although

* Alain Clément ("Vers l'Amérique," *La Caravelle*, No. 17 [Spring, 1964], p. 6) shrewdly attributes the Europeans' distrust of the official American version of President Kennedy's assassination, and the Americans' almost universal acceptance of this version, to this radical difference in the attitudes of the citizens toward public officials.

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the private virtues have been practiced in Europe so much more fervently than the civic ones, by contrast with the United States, the hold of the state on the individual and the subordination of private gratification to collective requirements have been strengthened. Both the bureaucracy and the interest groups (what the French call *les forces vives*) have received a role in the preparation and execution of state decisions that is both greater and more readily recognized than in the United States. This innovation has not only created a new difference between the United States and Europe; it has also consolidated two old ones. On the one hand, the role and prestige of European parliamentarians has declined even further, whereas United States congressmen cling (and sometimes behave according) to a theory of representation that crowds all public concern within the charmed but occasionally vicious circle of Capitol and White House, and makes of the member of Congress the only legitimate spokesman for his constituents. On the other hand, the expansion of state functions has benefited the public "technocrats" and provoked a renewed demand, often utopian in its scope, for "participation," symbol of a growing gap between "us" and "them."[4] Thus the basic relationship of the American citizen to his officials may well be one of apathy, based both on trust or a sense of identity, and on rather modest expectations; the European's relationship is often a mixture of apathy based on distance or distrust, and hostility due to heavy dependence as well as fear of arbitrariness.

Another area where innovations have both confirmed and added to the contrasts between Europe and America is that of class relations. Both in France and in Germany the structure and the behavior of labor unions have been molded by the past attitudes of the upper classes and the earlier role of the state, as indicated above. Today the circumstances which shaped these French and German unions have disappeared. And yet, on the one hand, the traditional behavior and organization of the workers have been confirmed by the new events. The French workers' pattern of protest and blackmail of the state developed at a time when the bourgeois, who had adopted many features of the French aristocracy in their fight against it, resisted proletarian demands and slowed down economic growth. Today, despite the change in business attitudes, the new and leading part played by the French state in development has perpetuated what Michel Crozier calls the unions' fascination with Power, and has made blackmail even more useful as a way of affecting the distribution of the national income.[5] Moreover, Communist

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preponderance among the workers provides a new force of protest against inequities in this distribution and a new focus for business and labor hostility to face-to-face discussions. In pre-Weimar Germany, labor unions were more cohesive and less rebellious than in France because of faster economic development promoted by the aristocratic class and by a "Gnaden-bourgeoisie."[6] Today, the influx of refugee labor has contributed both to the numerical strength and to the cautious behavior of the unions. On the other hand, the innovations have sharpened the difference between Europe and America insofar as they have broadened previous differences among the Europeans, thus offsetting the unifying impact of industrialization. The divisions of French unions and the fact that the biggest one is under Communist control oblige the labor movement to concentrate its efforts on the central level—that of Power. German unions are wholly without Communist influence, and their strength allows them to concentrate on the control of the workers in the factory and on relations with business. Moreover, each European nation has created its own network of procedures—ranging from ineffective to quite effective in the Dutch case—for the settlement of social conflicts.

In one area, old differences have been confirmed and a new one has been created not merely by European innovations but by a combination of destructions, resistance and novelties: I refer to the attitude of social groups and nations toward the new industrial society. What is being destroyed is the former bourgeois "sobriety" which once kept the European way of life far below America's splashes of conspicuous consumption, as well as the former reluctance of bourgeois and aristocrats alike to mass production, which meant dependence on the market. What is, however, resilient is the concern of even hard-working Europeans (businessmen or industrial workers) for "whatever . . . is beyond work": "distraction, pleasure, evasion." There is a desire to put limits on work; there is a determination to preserve "elite cultures" that coexist with but are not submerged by the progress of mass culture and that continue to set standards in the arts. Both show the imprint of the "aristocratic age" in which work was a disgrace for a few, a curse for most, for others a means to rise but not an end in itself, for some a tunnel through which one had to pass before one could cultivate one's inner freedom and fulfill one's deepest aspirations. What is new in the possibility for many more Europeans than in the past to enjoy what is "beyond work"—holidays or paperbacks. As a result an old difference from

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the United States has been deepened: despite, and even to some extent thanks to, the progress of mass consumption and mass production, Europeans keep "asking more from life" both in terms of an "insatiable demand" for material goods and "in terms of fulfillment" than the Americans, whose society "remains oriented toward and by work."[7]

Moreover, the contrast between America's rather uniform orientation and Europe's has been increased by new differences among the Europeans. The more European societies become alike in their social structures and economic makeup, the more each national society seems to heighten its idiosyncrasies. Recent surveys among young Frenchmen and Germans who have visited each other's country fail to reveal any "homogenization." Clichés about national character live on, and national disparities get stronger: the spectrum extends from Italy, in which the task of economic and social change is least advanced and where the Communists have a powerful intellectual and political hold, to France, whose economic and social transformation has so far made no constructive impact on the party system, and to West Germany, whose values and politics remind observers far more of the United States, for federalism divides its bureaucracy, the disasters brought by past ideologies have singed all who have not been charred, and the ideal of the *Marktwirtschaft* (although it is *Sozial*!) has more than a few illusions in common with American free enterprise. To be sure, there are regional differences in the United States as well, but how pale they look by comparison! The national state, exorcised daily by the prosecutors of its obsolescence, continues to make a difference. Each European country adjusts its "national character" to the new age in its own style, and particularly in its own style of authority.

PRIDE VS. PURGE

It is neither fashionable nor accurate to say that nations have souls. But they do have historical memories—memories of how their citizens behaved toward each other and toward outsiders in moments of stress and crisis. If the concept of industrial society tells us little about the institutions each kind of industrial society will have, it tells us nothing at all about the historical conscience and consciousness of a nation or continent. And yet, since people do not live by economic rationality alone, this is a dimension that cannot be dismissed.

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American industrial society has grown in a nation whose rendezvous with history have not been disastrous. It overcame its greatest internal challenge in such a way that its political institutions were strengthened. It survived the depression in such a way that the Presidency emerged as the center of national action and the focus of national expectations. It managed its relations with the outside world, first so as to avoid explicit dependence, and later so that entanglement corresponded with supremacy. Thus it is not surprising that Americans (outside, perhaps, of the South) should feel a special pride in American history, tend to read it—from Wilson to Morgenthau or Niebuhr—in terms of ethical teleology and often indulge, when they speak either of America's development and "purpose" or of the ups and downs of less fortunate nations, in what C. Wright Mills called the national celebration. It is in the literature of the South alone that one finds a deep sense of guilt, resentment, doom and tragedy—and this is of course the literature that appeals to Europeans most.

For however much European societies may have been rejuvenated by postwar changes, their unhappy past clings to them. They may have shed their old skins, but their nerves and blood are still weakened by the diseases of their past. The contrast with the United States is provided not only by a long record of national rivalries and wars that have left traces everywhere, from the history books which are so hard to harmonize this side of expurgation, to the *arrière-pensées* of foreign policy. It is also the depressing story of multiple disillusionment and frustration which every major European nation has experienced in this century. Except in the relations between North and South, Americans of different regions can face each other without deep misgivings and look at their past without shame. Their very mobility has loosened the grip of sectional memories. It remains difficult for a Frenchman and a German (even the postwar young ones) to talk to each other as if the past had never happened, or to think of their own nation's recent history with complacency. The only common heritage of the "new Europeans" is one of guilt and shame. Shame, for having produced the biggest record of atrocities in centuries; shame, for having acted in such a way that Europe has become a stake; guilt, for having so often repressed awareness and atonement; guilt, for having again and again turned the national community into an arena for civil war. The plays that describe the European historical condition most adequately are Camus's allegorical *State of Siege*, which uses

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Spain to express truths of general European relevance, and Sartre's frantic *Condemned of Altona,* which uses Nazism to speak about Algeria. Both are plays of disillusionment and denunciation. The stinkers and the cowards, the politicians of restoration and the practitioners of torture fill the stage. The pure rebels die, and even the self-torturing guilty rebel Frantz, in *Altona,* finds peace in suicide only. This common experience of failure on a massive scale—World War I with its methodical slaughter, the thirties which debased ideologies intellectually but turned them into deadly weapons, World War II with its atrocities, the traumas of dependence and decolonization—all of it opened a gulf between the continent and the United States, and a gap between the continent and England. For although the British and Americans shared some of those experiences, they did it without humiliation and traversed them without much sense of guilt.

True enough the "new Europe," in passionate pursuit of the pleasures of the present, often appears to have digested its past; some of its statesmen talk as if pride, not shame, were its duty; many of its sons behave as if the new generation had been born without parents. The United States is in the midst of a soul-searching act of its own: the civil rights crisis. But the French, two years after the end of the Algerian war, seem to have forgotten what used to be for so long an all-filling tumult. Nor is Nazism a major issue in German politics. And yet suppression is not oblivion; amnesia is no absolution. At least the United States is willing to face its damned spot. Europe wants to remove the smell of blood; but pretending that there is no stench will not make it go away. In every new debate the old lines of division among Frenchmen reappear: Vichy still produces a presidential candidate, and discussions on foreign aid or military policy bring back the sound and fury of Algerian controversies. Trials and scandals show that however much so many Germans may want to think of Nazism as an accident, something like the aberration of another planet, the temporary filling of the German void by a gang of advanced savages fallen from the blue, it was not a fluke but a cancer whose extirpation leaves scars and whose incomplete postoperative treatment leaves doubts as to whether it will recur. What killed Sartre's Frantz was not just the memory of murder but also the discovery of his nation's refusal to remember, and of its abdication to prosperity.

And so the contrast with the United States continues. What

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sharpens it is the fact that the United States faces its own blotch as one nation (especially since the North realizes that it has its own share of the responsibility), whereas Europe tries to escape from its past as a set of separate nations. Since Europe's recent history has been both one of national hatreds and one of internal strife, each European nation continues to stew in its own sour juice. Each one has tried a different way of coming to terms with itself. The French have been submitted to de Gaulle's psychological massage. They have been told that they all resisted, that their share in victory was great, that their colonial policies were beautiful, grand and generous, that decolonization was their wish and their pride, that the world's eyes were glistening whenever they met France. This heroic effort at restoring self-respect and denying humiliation has had mixed results. The emperor's beautiful clothes do not hide, even from the French, the dirt and the wounds beneath—and there were twelve years during which the emperor was not even around to parade his mantle. Yet mixed with cynicism there is pride, or at least cockiness and self-assertion. Half-believing in pedagogical flattery is more than disbelieving it altogether.

Germany, on the other hand, has been neither flattered by its leaders (how could it be?) nor asked by them to repent (for one hesitates to plunge a whole nation into repentance when one tries both to lead it to its future and to be a democratic politician depending on votes). The result has been what foreigners and many Germans, too, call either the absence of a face or the lack of a national backbone. The French, even and especially when they disagree about the purpose and mission of France, still feel intensely French. They have accepted, indeed some have blessed, the material aspects of Americanization, but they still talk of a "French way" of using it. Many Germans, having passed through the most searing nationalism ever known to the world, now deny having "ever really understood why nations exist."[8] Hence the birth of new misunderstandings which maintain Europe's historical conscience as it always was: fragmented. The French, on the whole, try to exorcise their past by providing their nation with new reasons for hope or pride (this has been true of all their leaders; the drama resides in their miscalculations—Suez!—and in their conflicting assessments). The Germans, on the whole, have tried to do so by exorcising nationalism altogether. There is no pan-European recipe.*

* Thus, Gaullism in France means de Gaulle; in Germany it becomes the

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As for Italy, it has come to terms with its past neither in the French nor in the German way. Neither national self-assertion nor "European" good behavior, those two forms of activism, has prevailed. Amnesia, here, has not even tried to be constructive. Hence there exists an intellectual mood of pessismism and protest that reminds one of Germany's twenties or of France's thirties and forties. The nation has neither half convinced itself of its heroic fight against totalitarianism nor acted in such a way that a recurrence of the causes that once produced Fascism becomes unlikely. It is as if Italy had not had its thirties yet. Thus all Europeans have skeletons in their closets, but they are not the same skeletons.

VALUES VS. VOID

Although in the depth of its memories each European nation remains unique, and although the color of its memories makes of the European family an heir to the Atrides, the surface appears much more rosy, more homogeneous and more like that of the United States. The memories, being evaded, do not loom large by daylight. Then too, Americans and Europeans alike celebrate the progress of European pragmatism. Tolerance replaces the clash of ideologies; a concern for concrete issues and practical solutions inspires the politicians and the voters alike. Intellectuals try to contribute to the national discussion and settlement of those issues instead of indulging either in global justification or in a total *mise en cause*. The Europe of "carnivorous idols" has become *l'Europe du dossier*; it celebrates technology and compromise, expertise and empirical research. Does not all this show that American values are sweeping the Old Continent?

In my opinion, it shows nothing of the kind. Europe is converting itself to the functional necessities of a new type of social order —it has not converted itself to a new set of values. Europe flees from its past because it cannot look at it honestly—not because of a deliberate and mature repudiation. America's pragmatism, pluralism and "engineering approach" rest on a solid bed of beliefs, those of classical liberalism, which the Declaration of Independence and the Bill of Rights embody and a common loyalty to the Constitution symbolizes. Pluralism can be harmonious or cacophonic. America's

"Munich group," whose tone and designs send shivers even through French Gaullist spines.

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is harmonious because of a basic consensus: what is never questioned because it is not merely accepted but cherished is always larger and deeper than what is contested. The engineering approach is that of men concerned with the means because the ends are not in doubt. Empirical research is guided by a formidable body of theory, much of which (despite its value-free pretense) conceals or sublimates a firm conviction in the superiority of America's way of political and social life. The school system produces—consciously and enthusiastically—Americans, that is, men and women capable of cooperating because of a common respect for the values of liberal democracy and a common faith in America's purpose. In no society is conflict more universal, and yet its social theory takes consensus, not conflict, as its conceptual framework. There is logic, not paradox, in this apparent contradiction, for conflict flourishes at all levels precisely because it is contained within well-accepted limits and channelled through procedures and institutions to which loyalty is assured. The role of those devices is not to turn conflict into consensus; it is to find for limited conflicts solutions that are inspired by the procedural and substantive consensus which keeps the system going, and which such solutions strengthen in turn. In support of this proposition, we find both the silence of social theory (and the lack of effective procedures) in the one area where consensus was missing—race relations—and the gradual progress of theory and procedures as consensus begins to grow.

None of this is true of postwar Europe. Here there is no agreement on fundamentals. What works in America works because Americans believe in it; what Europeans believe in today is what works. The European consensus is negative: like culture, which a Frenchman defined as "what is left when everything has been forgotten," today's consensus is around "what is left after everything has been discarded." The French who have discovered the virtues of a presidential system, the Germans or Italians who praise liberal democracy often do so not because of any conviction but because everything else has been tried and has failed. The same is true of the intellectuals who repudiate the past tradition of "totalism"; often they do so not because of a deep belief in the intellectual's responsibility as an expert but because of the obvious failure of Grand Intellectuals to bridge the gap between thought and action. There is all the difference in the world between an affirmation and an auto-da-fé. America's intellectual stand has been on the plateau of a democratic *juste milieu*; Europe's road has gone from a mountain

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range of disparate ideologies to the present naked plain. Intellectuals who believed too fervently and too long that the polity was a battlefield of rival conceptions of good and evil, the *locus sacrus* for saving one's soul, have now fallen into a state of nihilism. It is not a nihilism of despair;* this phase is over. It is a happy nihilism, to be sipped in prosperity after all the great nectars of the past have turned sour. It has, of course, its reassuring charms. But it also brings with it three dangers that can be summed up in two words: Europe's silence.

The first danger is a lack of imagination. The old questions were too big, too vague, too murderous. Today there are no questions. In the past European intellectuals seemed to assume either that the worst was certain or that everything had to be subordinated to the triumph of the best. Today they act as if the worst was certain not to happen, and the best required no choice at all. Not long ago Raymond Aron denounced the ideological opinions which sacrificed the present to the future. Today he wants to investigate how the desire to calculate where one is going has come to replace the desire to ask where one ought to go; his and Camus's plea for modesty, against fanaticism, seems to have been interpreted as an appeal against intellectual probing, for the sacrifice of the future to the present. The accumulation of facts and figures, the extrapolation of trends, the discussion of forecasting and planning as if they involved no fundamental choices but only technical problems—better instruments of detection as it were, or better statistics—as if only the point at which the ball will stop rolling along the slope remained to be discovered, all of this betrays an intellectual fatigue that is excusable, given the past, but hardly encouraging.[9] The fact that in a world *où l'action n'est pas la soeur du rève* attempts at realizing utopian dreams turned life into a nightmare is no reason for chasing all dreams away. Past questions may have led to the wrong answers, but the avoidance of questions is not likely to prove any better. The man who drives himself into a ditch may get killed; so may the sleepwalker.

The European intellectual who today either borrows American theories, often without questioning their relevance, or else assumes that the questions have been already formulated and answered gives up a role which has been both his glory and the only clean feather

* Except in a few cases, like Sartre's—of all people; he who taught that there are no absolutes has turned politics into the "short change of the absolute."

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in Europe's dirty cap: that of raising the fundamental problems about society—its direction, the ethical validity of its actions, the relative worth of the choices open to it. A society without some judge who frets over its behavior, admonishes, advises, at times indicts and at other times approves, tends all too easily to fall into complacency. America is often charged with it; and yet both in domestic and in foreign affairs the issues are more sharply discussed, the choices more clearly spelled out and more hotly embraced than in present-day Europe. The reader of *Dædalus*'s "A New Europe?" cannot find a single European answer to such questions as: What political institutions would be most capable of protecting the individual altogether from excessive bureaucracy, from special interests and from arbitrary executive power? Should Europe's industrial society keep trying to regulate demand so as to give precedence to collective equipments (if not cathedrals) and to preserve some realm for quality? Should intellectuals accept as good and final the demise not only of verbal efforts to "change the world" but also of their role of overall social critics?

Here lies the second danger. The refusal to ask such questions means the implicit or explicit acceptance of unquestioned illusions. There are three which are quite common. The first is the technological illusion, according to which the progress of the sciences, material expansion and the spread of specialized knowledge will gradually eliminate that residual category, politics. Authoritative answers will at last be given to social problems that have remained unsolved (that is, political, if one accepts Jouvenel's notion that the political is what is insoluble) only because the material and intellectual elements of a solution were missing.[10] Aron once wrote that the day when intellectuals, having discovered the limits of politics, would become indifferent to it was not yet threatening.[11] He may well have been wrong—or rather, having discovered that politics was not all, many intellectuals seem to assert that it could somehow be reduced to nothing. Alas, there are only too many social problems which cannot be erased either through a welfare calculus or through the tidal rise of the learning process, for instance, all those of political philosophy.

A second illusion is the procedural one. It consists in believing that the method for solving problems is to put around a table all the interested parties, informed of course by the spirit of compromise; participation and goodwill shall provide the answers. This is merely a new version of Europe's traditional attitude toward con-

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flict. The recognition of deep-seated cleavages has always been at the core of Europe's social theory, but the practices of European polities—in part because of the prevalence of nondemocratic styles of authority, in part because of the role of state bureaucracies—have always tended toward the settlement of conflicts not through compromise but by acts of authority. Today the old practices are increasingly discredited (although they still abound), but the same desire to eliminate conflict as one removes a spot on a suit shows in the proliferation of suggestions for orderly procedures of settlement, based on the hope that the procedure would transmute conflicts of values and interests into harmony, painlessly and without friction. A kind of *escamotage* at the bottom has replaced the *escamotage* from the top. Once again the parallel with American beliefs is strong, but once again one has to say that there is no *escamotage* where the conflicts are marginal, often technical, and steeped in a culture that values agreement for agreement's sake. Where social groups remain divided by memories, suspicions and insecurity, where citizens do not recognize themselves in their public authorities, where interest clashes are made more rather than less ferocious by a dearth of ideological beliefs that lends interests a vicarious fierceness, the situation is not auspicious for procedural solutions. There would be less discussion of "democratic planning" in France if one would at last realize that what is involved in a so-called "income policy" in nothing less than a philosophy of social goals. A coherent policy has little or no chance of resulting from interest compromises and conciliation procedures, for the simple reason that groups and parties disagree drastically on ends and means—the real choice remains (once again) between a decision by fiat and the pluralism of cacophony.

There is a third illusion: believing that Europe's undeniable progress since the twenties in the difficult art of making a society aware of its problems and of its collective responsibility for solving them means an increased capacity to identify the problems of the future or a greater relevance to the concerns of less developed nations. It is true that in the areas of social security, planning, and regulation of the economy, European postwar reforms have carried collective consciousness beyond what exists in the United States. The long battle over medicare seems incomprehensible to many Europeans. But nothing yet shows that the techniques developed in order to solve the problems and allay the fears born out of the thirties will prove equally capable of dealing with the next phase.

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When it comes to automation and the problems of leisure, to the fate of the aged and to juvenile delinquency, all "societies of plenty" find themselves in the same wasteland. If Europe has been more inventive in battling the scourge of poverty, it is because the pressure was so much greater there. But applied Keynesianism is of little help in the new situation.

What is striking in those areas and in many others as well is the third danger of the void: the absence of a European *projet*—that is, of a European social and cultural design. It is easy to argue that there has never been a European design or that those we find in the past are *ex post facto* intellectual reconstructions. But this is not the way in which Europe appeared to non-Europeans; moreover, whoever reads Europe's doctrines of the past century discovers two sets of convictions. One was the conviction of an over-all movement of mankind. This faith was symbolized by all those philosophies of history that our superior "scientific" knowledge ridicules (but that are still represented in much of America's more sophisticated grand theory of today—*vide* Walt Rostow); the movement was marked not merely by the unfolding of material progress but by political progress as well: the drive toward parliamentarism or imperialism, those summits of human ascent, or at least so they seemed at the time. The other was the conviction of a national purpose, carried at times to incredible chauvinistic lengths but nevertheless of value in unifying national elites often deeply divided on other issues. There is little of either left in today's Europe; smart debunking has replaced rash belief. We should not be surprised; the development of a *projet* requires a sense of stability, a belief in man's capacity to set the course of the journey and to get to the destination through his own means. What prospers instead is either the belief that technological forces will drive one to the end of the road or that the best one can do is hold high the lamp so as to illuminate the next steps.

In no area are the absence of questioning, illusions, and the lack of a *projet* more evident than in education. If the resistance of the old system is so self-righteously strong, if the reforms of the new prophets are so timid and tentative, if the attempts at defining a new curriculum are so groping, if the alternative to the old authoritarian relation between students and teachers so often seems to be the collapse of discipline and structure, if the sum total of national destructions does not amount to a European construction, it is because of the void of values. The old system did not merely

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dispense knowledge to some. It taught a number of alleged truths and served to shape a society according to those truths. There was a basic conviction: in the value and necessity of elites for the government of society; in the superiority of elites trained in the classics or in pure science, steeped in "general education," made capable of rising above ordinary human mediocrity through the enjoyment of personal freedom (money helped). This freedom was to be achieved through and nourished by the knowledge of essential facts and laws of nature or human nature discovered over time by the wise—facts and laws that did not have to be discovered again by each generation but that could be transmitted authoritatively by those who knew them to those who had to be told and who would later on transmit them in the same way. Neither the purpose nor the substance nor the method was in doubt.

In today's enthusiastic rush toward mass education the questions which are not being asked are those about the purpose of the enterprise. Is it to provide the new industrial society with the requisite number of technicians in each branch, or is it to make it possible for a much larger number of men and women to enjoy the kind of knowledge and culture without which liberal values cannot be safeguarded? The choice between economic rationality and a democratic humanism exists, and to avoid stating it may lead to failure on both counts. Nor has one faced the question of whether the plight of the ill-educated is not as sorry as that of the noneducated: surely it is bad to waste talents because of an educational system narrowly reserved to the happy few; but is it any better to waste talents in the quicksands of an ill-conceived mass education whose curriculum is but juxtaposition of unintegrated techniques and whose egalitarianism treats the bright and the stupid alike? The reason for the absence of questions is simple: if the new system of education is to form a new European man, then it cannot be established, because there is no conception of what such a man ought to be. The values which young Americans carry in their school baggage are not universally accepted by the Europeans, since although there may be a drive for mass education, there is no general admiration for a system that puts as much weight on "adjustment" and happiness as on learning. Richard Hofstadter has shown the anti-intellectual basis of much American thinking about education;[12] but in Europe it is still the intellectuals who try to shape the new order, and they do not endorse the creed from overseas, although they like some of its results. Moreover, the American system is linked

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to the notion of the melting pot—indeed it *is* the melting pot. A nation that tries to make of so many one and has made of mobility a way of life has to place adjustment at the center of its concerns; but there is no school system of pan-European assimilation yet.

Thus there is no clear vision either of the social or of the civic ends of the enterprise. Contrary to Comte's maxim, what is being destroyed is not always being replaced. *L'honnête homme* recedes in the distance and is (rightly) accused of having been merely a rationalization for the harsh old fact of aristocratic and bourgeois leadership, leisure and luxury. But all that we find in his place is the democratic question mark. The new teachers have lost the convictions of their predecessors as to the values that a society needs in order to preserve itself and that a nation needs to keep its place in the world. They have few convictions of their own, for the new society that emerges is born in confusion. They are not familiar enough with it to know what they want it to be, and both in their social and in their national ideals they literally hover between a world already dead and one that is born too recently, too tumultuously and, above all, too *un*deliberately.

In such a void, only illusions bloom. There is the illusion of achieving all the benefits of mass education without any of its disadvantages—the raft of quality miraculously floating on the ocean of quantity, discipline preserved amidst classroom democracy, as if educational systems were machines with interchangeable parts. There is the illusion of social justice through educational reform. It is true that inequality in educational opportunities is at the root of social injustice; it is true that the school system is the social elevator; yet it is a mistake to believe that by forcing the elevator to stop on every floor one will have achieved the breakthrough toward a classless society. Indeed, as long as other obstacles and taboos have not been removed, many people will not even try to catch the elevator. School and university democratization provides a chance to all those who never had one. But whether the chance will be seized depends first on the expectations and on the income of their parents; both have to be raised; otherwise, social structures and values of inequality close up around the reformed educational system, as postwar England shows. Even if the chance is seized, the reform will reach its goals only if the newly educated talents are provided with adequate outlets—an "if" that goes far beyond the educational system itself. Also, even if the outlets are found, whether democratization will lead to genuine mobility over a period

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of time and not merely to the "rise of the meritocracy," to a new hierarchy along functional lines or to a new disguised inequality shaped by the hierarchy of prestige among allegedly "equal" types of schools remains to be seen.

Finally, there is the civic illusion—the hope that democratization will make good European citizens out of the young. A greater knowledge of the contemporary world, the teaching of and the training for democracy in school, a program less centered on the nation ought to help, but once again America, the example, cannot be the model, for the school or university produces good citizens only when there is a regime, a state, a sense of legitimacy disputed by few. There is none yet in Europe as an entity—nor in all of its main components. Thus if educational reform suffers from so many growing pains, it is because even men who have no particular fondness for the elitist past are not convinced that those pains will lead to growth. It is not wise to treat an anxiety for values and a nostalgia for quality merely as the residue of feudalism or of the bourgeois age.

At this point the tired reader may well inquire: "Granted that today's Europe is not like America in its institutions, in its past and in its values, so what? The differences so laboriously listed are mainly marks of transition: Europe is like a huge disposal that must incinerate its habits and beliefs of yesterday before it can create new creeds and customs, or else those differences will be eliminated as soon as the United States moves in the direction already taken by Europe in the realm of public welfare, and as soon as European integration unites the European nations. At the end, there will be two largely identical industrial societies."

This may well be the case. But it is not at all certain. There comes a moment when the most "agnostic," critical and cautious social scientist must do what Kelsen does with his pure theory of law: he reaches a *Grundnorm* which is a mere hypothesis. We are faced here with a choice of *Grundnormen.* On one side there is the belief in a kind of economic and social determinism—a belief which runs through writings on both sides of the Atlantic, from Marx or Comte to Lipset or Duverger. On the other side there is the belief in a broad and complicated autonomy of the polity: the whole area of man's relation to the overall community and of the relations between the communities is seen certainly not as one where pure

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chance rules, but as one which is shaped *both* by the economic and social order and by the memories, the cultures, the political institutions and calculations, the ideas and the passions which are so largely independent of the underlying order. The former *Grundnorm* has the merit of simplicity. The latter strikes me as more fertile. As a disciple of Montesquieu, Tocqueville and Aron, I choose the second. It is the one that leaves most room for collective creation and statesmanship. For it shows that there are many forces at work—often at cross-purposes; that none of them determines all the others; and thus that there is room for using them, blending them, shaping them and building a future out of the very contradictions of the present.

There is a first implication from this choice. If the similarity of economic and social orders does not guarantee the similarity of polities, if a certain type of social order does not breed the desired values or obliterate the past all by itself, then the Europeans, supposing they *wanted* to take the United States as the over-all model, would still have to make a special effort of imagination and action. They would still have to overcome residues and resistances the United States never faced; they would have to face their past instead of fleeing it; they would have to adopt American values consciously; they would have to unify Europe less sluggishly and haltingly. They cannot adequately analyze their affairs in American terms, or accept American explanations of Europe in American terms. What is *sui generis* in Europe has to be accounted for; the optimism of various American theories makes sense in and for the United States, but no sense at all if transplanted in Europe. Elections may be the democratic form of the class struggle on this side of the ocean; on the other side both elections and the class struggle remain rather more complicated undertakings. Leaders of private and public bureaucracies who share the values of their subordinates and who rule according to a democratic style of authority may not be dangerous, but when the style and the values of the elites have traditionally not been democratic there is less room for complacency. Even if optimism were justified, Europeans would still have to discriminate. Otherwise the light by which one chooses to be guided could happen to be that of a dead star. The presidential system many Frenchmen admire is that of the Hundred Days, not that of the trench-and-guerilla warfare of recent years; the mass education system which impatient European reformers envy is busy trying to introduce some of the very methods and institutions

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which those reformers decry. Thus there is a risk of the two cultures crossing each other without ever really meeting or merging.

But there is another and more important implication. If, on the one hand, nothing determines that Europe will be a replica of the United States; if, on the other hand, the past institutions and history of Europe's polities are just as likely to affect Europe's future as the new social order, then the Europeans have no excuse for silence, passivity or complacency. For they are still free to analyze critically America's own experience and to sort the good from the bad so that Europe may be spared the latter. They are still free to make of tomorrow's Europe an industrial society that will have its own profile, not simply because many of the old features will not have been erased by the plastic surgery of industrialization but also because of a deliberate effort to preserve Europe's originality. Nor do the Europeans have any excuse for anti-Americanism. For if they understand that "Americanization" is really just the passage to industrial society, that it has come out of European developments (although the United States encouraged it), that many of the "American" features the process has developed are due either to an almost gleeful European imitation of what is worst in America's industrial society or to the impact of the world's dominant power on a weakened and fragmented continent, but in neither case to any permanent fatality, then they will realize that anti-Americanism is merely an evasion of Europe's own responsibilities. America should be neither imitated nor blamed blindly. Some Europeans are anti-American because they do not want to accept the fact that industrial society has come of age. Denouncing the United States saves them from the difficult task of trying to make a virtue of necessity. Others are anti-American because it is easier to blame the United States for the blemishes of Europe's new society than to trace them back to Europe and to admit how difficult to remove they are. These men are like atheists who, while denying God's existence, never stop making God responsible for man's own plight.

In other words, what is required is Europe's return to a normative attitude. The situation permits it, and moreover *noblesse oblige*. This means, first, that Europeans ought not to act as if all of their social and national past deserved oblivion. Long after Tocqueville, Domenach and Crozier[13] have observed how much the Europeans' concern for the defense of the individual against social pressures and care for the preservation of the intellectual's prestige were linked to the aristocratic age. This is no reason for giving up

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either. On the contrary, it is a reason for trying to adapt both to the age of democracy. All individuals, not just an elite, ought to be shown how to escape from the alienation of labor, from enslavement to technology, and from the shrill demands of the mass media, of the neighbors or of all sorts of groups. The distance which the intellectual liked to keep between himself and the mass, the irresponsibilty to which he often laid claim ought to be abolished, but not his right and inclination to question. *Noblesse oblige* means also that Europeans have no justification for dropping what made Europe great—it was the continent of the examined life. Its spiritual silence of today is as deafening and disheartening as its earlier clamor of despair.

One of the choices Europe still has to make concerns its future role in the world. For in this respect also, there is freedom of choice, but it has not yet been fully used.

II. *"Europeanization" with Diffidence*

Let us turn from Europe's new social order to Europe's role in the world—from the realm of intellectual dependence to that of dependence in terms of power. Nowhere is the void I have denounced more conspicuous. To be sure, we find an effort toward unity, directly inspired by the example and encouraged by the policy of the United States. Is it not precisely here that the "American model" has been both relevant and useful? Is it not here that the Europeans have succeeded in turning prosperity into statecraft, in breaking with their past without evasion, in shaping a *projet* for Europe? And yet, the answer must be: no. The enterprise has not fully succeeded, because the model was not relevant and the *projet* was not drafted. Aron is right. "It is not sufficient to create a European state. Rather, one must ask: What would be the object of a European state? To have a sense of vocation, Europe would have to discover a goal."[14] It is the search for a common goal which has not yet succeeded. We must therefore examine first to what extent the progress of the European movement has filled the void, then what factors have prevented this void from being filled as yet, and finally what is the margin of choice open to the Europeans.

DELAYS AND DELUSIONS

Let us imagine some European publicist, in a coma since 1914,

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who suddenly wakes up and looks at the new world picture. He finds the air buzzing with clamors about Europe's new strength and new claims. His curiosity is aroused. What is it that the Europeans have to say? His astonishment begins.

He finds them talking to Americans. They say: "We want to be sure that we will be so effectively protected that we will have to suffer neither invasion nor liberation." They acknowledge dependence in what constitutes the alpha and omega of foreign policy—the area of survival—and merely ask for a greater part in the definition of the mode of protection. The Europeans also say: "Twenty years have passed since the end of the holocaust, and we want to be heard on all the issues that matter." So our publicist listens. But all he hears is a strange cacophony tantamount to silence. On Europe's future relations with what used to be called the Communist Empire in Eastern Europe—on Europe's relations with the new nations—on whether Europe's future is indissolubly linked with that of the United States within some Atlantic community or partnership—on how Europe should be organized so as to find a voice with which to answer such questions—all that he can discover is a few suggestions here and there, which generate neither light nor enthusiasm, but heated rebuttal in other quarters which argue that any talk of a joint European policy is nonsense since salvation lies in huddling under America's umbrella.

To this, the first reaction of our publicist is a sharp flash of familiarity: Isn't it what it has always been? Hasn't Europe always failed to speak with one voice only? But then he sees that there is something abnormal in the situation. Shouldn't the very new fact of dependence for survival incite the dependents to get together and snatch their destinies back? At this point, and with the help of some background briefing, a third reaction sets in: he realizes why there is no European project. It is not just the absence of a precedent, it is also the avalanche of rocks that have battered and buried Europe's pride and ambition. They have not just bruised Europe as a whole; they have bloodied each European state in a different way. A common fate has created a unity of concern in this little "cape of Asia," but there is no unity of reaction. For each nation's fate has been slightly different, and the common fate is not perceived alike.

So the delays in unity are at least explained. Obviously the French have not quite the same interest as the Germans in reunifying Germany. Obviously the Germans pay not quite so much

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attention to Vietnam—or Algeria—as do the French. Delays and divergences breed confusion. There is a Franco-German treaty of cooperation, but all of France's eggs are in the nuclear basket, labeled independence from the United States, while all of Germany's are in the conventional basket, labeled reliance on the United States. Alice would have felt at home in the European wonderland. Starting from an identical profession of loyalty to self-determination, the Germans move cautiously toward a détente that does in fact consolidate East Germany; they blind themselves by pretending that the détente perforates the wall between the two halves and prepares reunification, whereas the French reject any such move, which they (rightly) see as playing into East Germany's hands—as if their own intransigence were any more capable of undermining the wall.

Our publicist cannot remain discouraged very long. For undoubtedly his eyes will come across the evidence of European integration. Here there is a common enterprise. It has its institutions, it has given Europe a single voice in matters of tariffs and trade, of industry and (soon) agriculture. There *is* one Europe of welfare and wealth—no mean achievement, to be sure. And yet, how much of an achievement is it? It does not amount to a common world design for Europe. There is a striking contrast between the concrete, down-to-earth, toughly bargained results obtained by the economic communities and the often nebulous and usually divergent expectations of the governments and nations engaged in the enterprise. Europe is a divinity which means different things to the different faithful, as well as a business that brings tangible gains to many. For the Germans Europe is both the mast to which they find it wise to tie themselves in order to resist any new siren's temptations, and the new backbone that replaces the cancerous nationalistic one. To the French it is an opportunity for leadership—the only one left. It is the elevator that will lift them to the floor of rank, prestige and power. To the Italians it is a pump of economic development and an alibi for absence on the world scene. Such ambiguity, to be sure, has its merits; indeed, it has its champions. As long, they tell us, as all those divergent aims fasten on the same techniques and institutions, this very diversity of expectations will feed and foster the new entity. As the entity has been endowed with bodies that exploit ably and diligently that convergence of the many on one, it is true that the entity has grown. And yet it is just at this point that our publicist stumbles upon those

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illusions that abound in the European void. Indeed, it is in the area of integration that illusions have most seductively lulled and dulled European and American minds.

The most potent illusion is of the procedural kind: the "Monnet method." It is a mind-expanding drug which makes those who take it believe that Europe's unity will proceed, thanks to step-by-step, concrete bargains and independent, expert "supranational" therapy. Moreover, the method is not felt to be valid for Europe alone. All interstate problems, all conflicts of purposes and policies could thus be reduced to compromises satisfactory to everyone. The Monnet method, for all its charm, is a fine example of the void I have discussed. For it does not provide an answer to the question: Where do we want to go? In fact, it dismisses the question. It says: It does not matter where we go as long as we go somewhere together. It puts form over content, substitutes procedure for substance, sacrifices direction to motion; hence both its attractiveness and its limits. It attracts all those who want to be in motion, yet have not defined their purpose. But it can succeed only when certain conditions are met, of which the champions of the method are not aware, for those conditions contradict their premises.

The method works only when the question of purpose has already been answered—when the governments have agreed on a goal *and* on a direction, that is, on a policy. Moreover, it works only when the governments are convinced that the procedure will indeed help them stay on the right road and reach the destination. In other words, the method cannot work when each government, however much lip service it pays to the idea of a common goal, actually wants to follow a road of its own, and when the roads the governments propose to travel are so far apart that the statesmen are not willing to entrust their travel plans to an agency that may push them into detours they do not want to take or toward destinations they do not want to reach. This is what the record of European integration shows. The method has worked within the area of welfare alone. Here the governments have been animated by a common will, to maximize wealth; and this common goal has been, so to speak, operational, whereas a common desire to maximize security or power would not be sufficient. What has made the enterprise both successful and limited is the essential difference between economic behavior and theory, and political behavior and theory.[15] On one side of the fence we deal with quantifiable interests—capable of being calculated, compensated, bargained in

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fractions or in toto; it is possible to maximize wealth either without requiring crippling sacrifices from anyone, or by offsetting sacrifices made by someone in one area so that the overall result is still a gain for each. On the other side of the fence we find those intangible interests of state which are of quite another order. For they involve the passions that are the stuff of tragedy: prestige and *hubris*, domination and independence. They concern issues that can hardly be compromised, for they are not divisible and negotiable in such a way that my gain means also your gain, rather than your loss: issues like security, survival, autonomy. On one side of the fence we find a mass of goods which it is easy for all to want to maximize, since they are *instruments* that each can then use either for his own objectives, when there are no joint ones, or for a common enterprise should one emerge. On the other side of the fence there is a small group of men who try to influence each other and who use in the attempt all the instruments at their nation's disposal (including those material goods) in order to reach *ends*. What is at stake here is the possibility for one to impose (through whatever means, including persuasion) his views of the ends on the others, so as to give to the "common end" the face and color of his own desires. Goods can be "integrated" and maximized, so to speak, anonymously; the integration of foreign and military policies, in a world in which security and leadership are the scarcest of values, means what it has always meant: the acceptance by some of the predominance of others. This is why, on the "high politics" side of the fence, a vague "agreement to work together" is not enough. It does not amount to a policy. We must distinguish an intention from a consensus, however fragile; the Monnet method may seize a weak consensus and make it strong, but cannot create it.* In its absence, the re-

* The case of agriculture is the most interesting. The Treaty of Rome contained only the outlines of a policy, but it went beyond a mere intention, and the institutions of the EEC have turned a weak consensus into a growing one. The treaty stated not merely a common intention—the establishment of a joint agricultural policy—but a common *goal* and a common *direction:* the inclusion of agriculture in the Common Market before the end of the transitional period, with a system of minimum prices and preferential purchasing. Recent difficulties have shown that the transformation of a vague consensus into a strong one is an arduous task, but however vague, the consensus went far beyond a meaningless statement of intentions; and its procedural character (which left the elaboration of the policy to the organ of the EEC) reflects not only the weakness of the consensus but also the previous existence of a substantive consensus on goal and direction.

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course to supranational integration by governments means only that they choose to conceal the embarrassment of dissension behind the businesslike façade of supranationality, in which case real consensus remains to be thrashed out.

It is not surprising that this method should appeal so much to Americans. The style of the European entities, with its emphasis on the participation not only of governments but also of interest groups, with its stress on pragmatic steps and functional expertise, its method of bargaining and compromise, corresponds beautifully to the American style of authority. But here we find again the difference I have already mentioned: in the United States this style is the outgrowth of an agreement on fundamentals; in Europe, except in the area of welfare, it would have to be a substitute for such an agreement. The Monnet method is the sleepwalker's way. It works as long as the ground is flat. When the obstacles multiply, the choice for the sleepwalkers is between waking up and hurting themselves. Governments, responsible for their nations, have a way of preferring the former.

A second illusion—a more sophisticated technological cousin of the first—is that which Ernst B. Haas has proposed.[20] He does not pretend that methods which work in the area of welfare, calculus and collective bargaining, are equally applicable elsewhere. He states that the logic of industrial society is to make of this calculus the universal criterion of political choice and of such bargaining the dominant style of political behavior. "There is no longer a distinctly political function." This is not a theory: it is an act of faith. For it to be true, it would be necessary to envisage that very death of politics, that very replacement of the government of men by the administration of things which Saint-Simon predicted a bit prematurely. We are not at that stage. In today's world, industrial society does not assure domestic stability—that is, the death of the internal political function. In today's world, prosperity is not just a goal; it is a means with which states play the same old game (although the stakes are higher and thus the rules less reckless), that of competition in insecurity. The only states which can behave as if the external political function has withered away are those that leave the whole burden of their protection to others—but surely Europe is neither willing nor allowed by its protector to take the veil. For Haas's (or Saint-Simon's) vision to be true, we would have to imagine a united world of plenty, and nothing less. Split it into states again, and international politics is reborn. Introduce scarcity

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into the distribution of any goods, and domestic politics—the manipulation of men by men for the allocation of what is scarce—re-emerges. Indeed, even in a united world of plenty, authority would remain a scarce good, and there would be a political function still—the competition for the control of the distribution of plenty. There is no escape from politics. There is only the politics of consensus and the politics of conflict. In today's Western Europe, supranationality works where the former prevails, and where the latter rules neither the welfare calculus nor the style of collective bargaining prevails. Therefore even the relatively uniform society of Western Europe hailed by Haas could remain divided into divergent nations, just as a single economic and social system can be harnessed by different regimes.

There is a third illusion: that of the "federating process." Carl Friedrich's conception of such a process is, again, an attractive one.[17] But there is, in my view, a fundamental difference between what I would call the "incipient" and the "federal" stages of the process. As long as the component parts are the masters of the pace, the "federalizing entity" remains a fragile one. It becomes strong—as European federalists have often stated—only when the basis of the entity is not an agreement among the former "sovereign" parts but the will of the people itself. The trouble here is that such a will cannot be created *ex nihilo*: on the one hand, it takes a prior decision of the governments to let the people speak as one; and they are not likely to do so unless they feel sufficiently reassured about the consequences of their auto-da-fé. Even "grass roots" efforts at unification wilt or grow depending on whether the governments turn the hose off or on. On the other hand, should the governments miraculously decide at a very early stage to let the people take over, the result would be at least as likely to hurt the cause of European unity as to help it. For the specific domestic demons of the separate nations would not have been exorcised by such a "leap forward": France's old problem of legitimacy, for instance, would be as likely to weigh on the new European problem of political order as to be alleviated by it; moreover, on matters of the common *projet*—Europe's role in the world—a convention of delegates from all over Western Europe would only pile the national and political divergences among the Europeans upon the flaws and futility shown by any present-day parliament in matters of defense and foreign policy. Thus the problem remains: how to forge a common will out of a clash of wills. Why does it still prove

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untractable? What are the forces that now prevent the Europeans from agreeing on a direction and a purpose?

RESTRAINTS AND RECRIMINATIONS

Limited in its scope, confused in its ambitions, the choice for integration has been based on three factors. First, the Europeans took into account the situation of Europe in the postwar years: the economic collapse of the nations, the felt threat of Communist invasion and subversion. Then there was American policy, determined to unify what had been a zone of wars and what was now a zone of weakness, so as to produce a peaceful and strong entity capable of helping (the French word *seconder* is indispensable here) America carry its world load, as well as of accelerating the hoped-for "thaw" of Soviet policy. Finally there was the "Europeans'" own desire to overcome the poison of nationalism, and to regain a sense of self-respect for Europe. These are well-known factors. Today, if we look at what inhibits Europe's choice of a unified role in the world, we find again three forces, not too different from the first three: the new situation in the world, the policies of the United States and the reactions of the Europeans to General de Gaulle.

The new situation in the world puts money back into the once empty bank account of separate European nations. This is true quite literally: prosperity, although connected with unification, has removed some of the sense of urgency which animated the drive for integration. But it is also true figuratively. On the one hand, individually the nations of Western Europe continue to have population figures, a GNP, a military establishment that may make "realists" scoff: those assets do not amount to power, defined in terms of mobilizable potential. With such a definition of power, the world remains undoubtedly bipolar. If we were still playing the game with all the old stakes and rules, the realists would be right; for in traditional world politics the connection between such power and what one might call "freedom of action and capacity to influence," without ever being a one-to-one relationship, was great and visible. But this was so only because the world competition was a fiduciary operation at the end of which one had to pay cash—war being the actual, likely or expected final test which exposed one's real wealth. Today's world is still dominated by the *risk* of war—hence the role of the superpowers, which in the nuclear age no one can deny. But the *expectation* and *likelihood* of war appear to

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have decreased, and the very change in the nature of the mobilizable potential has made its actual use in emergencies by its unhappy owners quite difficult and self-defeating. As a result, nations endowed with infinitely less can behave in a whole range of issues as if the difference in power did not matter. The very lightness of their rucksack facilitates their roaming on the world scene, whereas the superpowers are often immobilized by their unwieldy baggage. It is the extraordinary convergence of two quite independent series, the emergence of two poles of power only, and the discovery of nuclear weapons, that has made of a bipolar world a stable one for the first time in history. This stability magnifies the influence of lesser states—which may ultimately impair stability itself.[18] While those developments could help a united Europe, in the meantime they enable the separate European states to avoid or postpone the choice of a goal and role for Europe.

However, there is a difference between national complacency and inter-state discord. In today's Europe, it is discord that exists. Here the responsibility of the United States is real, although—one must be careful—there is a crucial distinction between responsibility and blame. Good intentions often produce unintended consequences. America's relationship to Europe has been and remains dual. On the one hand it is the relation of the leader in a hegemonial alliance to the lesser states—not satellites, given their considerable freedom of external maneuver and domestic action, but nevertheless dependents. On the other hand there is a relation of adviser to client: the United States has supported the kind of supranational integration that Monnet advocates, without ever really expecting that a federating Europe would clash with the United States where it matters, that is, in substantive areas of foreign or commercial or military policy, or over the procedure of decision-making for these areas.

The combination of these two relations has inhibited in three ways the emergence of a new European sense of identity. First, America's relationship of domination has undermined the policy promoted in its capacity as an adviser. For it is of the essence of any relationship of dependence, be it a hegemonial alliance or a genuine empire, not only that the leader be convinced of the broader gauge of his concerns and of his superior understanding of his dependents' true interests, but also that he succeed in so convincing many of the dependents. Through his wealth, his better expertise, his network of official and semiofficial organizations (which in the

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American case involves the formidable establishment of foundations and centers and councils) the leader is able to develop a perfectly honest and respectable clientele of "friends" who see their nations' interest in exactly the same light and from the same perspective as he. Now, this would not be *necessarily* an obstacle to European unification. But it is *necessarily* an obstacle to the appearance of a united European entity capable of acting in any way but that of a junior partner in the American firm. And it *happens* to be an obstacle to any unification in this particular instance, for two reasons: in matters of diplomacy and strategy the United States has continued to deal with the separate nations of Europe (both a case of responsibility without fault—since the Europeans have not united in those realms—and a self-perpetuating process); moreover, next to the clientele of convinced carriers of America's message, there is a gang of rebellious European urchins who see no point at all in European unity unless it results not in a European echo of American policy but in a European policy (whether it agrees with America's or not being secondary to its being made by Europeans in Europe). Thus domination here is in itself divisive.

Secondly, America's advice and promotion of supranationality have also had divisive and delaying effects on Europe's search for a new mission. Inevitably, people resentful of dependence were bound to be suspicious of any scheme of unity so ardently embraced by the leader: Europeans especially expect no state ever to act selflessly, and Americans tend to be seen as far more cunning and scheming than a careful examination of their policies warrants. This suspicion could not but be strengthened by the fact that the procedure supported by the United States might be legitimately thought of as damaging to European interests if applied prematurely in the sensitive areas of military and foreign policy. Not only the Gaullists happen to note that enthusiasm for such procedures is greatest among those European statesmen for whom dependence on the United States has become a dogma, among those leaders who see in supranationality a cushion to protect them from the direct influence and impact of their more powerful European partners,* and among civil servants and economists with little understanding of the complexities of strategy and diplomacy.

Finally, America's impact on Europe has been inhibiting because

* This role of a cushion between larger and smaller European states is played within NATO by the United States itself.

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of the ways in which the United States reacted when it discovered —in the areas of tariffs, agriculture and strategy—that European unification could lead to conflict, not harmony, in the Atlantic world. American reactions have been fourfold. First, there have been offers of "partnership," but so vague and so circumscribed (since they exclude the military realm) as to disconcert America's friends and to feed fuel to America's critics. Second, there has been a reassertion of policies designed to consolidate America's domination, even at the cost of undermining the drive toward unification among the Six. The two best examples here are the wooing of West Germany by the United States in economic and military areas, and promotion by the United States of the MLF. This scheme answers none of the Europeans' questions about strategic doctrine; it leaves the solution of the problem of control entirely for the future (that is, preserves United States control in the present) and tries to appease the Europeans with vague promises while reassuring the Soviets with statements about nondiscrimination that are incompatible with the promises. It strengthens America's hold on the other participants, thus tying them to the United States directly in a network of bilateral agreements much like Soviet-satellite agreements after the war. It makes the emergence of a joint European will and policy in the military realm far more difficult, since it diverts the participants' financial resources from such a goal, and even more because it chooses for defense a geographical framework entirely different from that of economic integration.* The third United States reaction has consisted of veiled threats of return to isolationism and unilateral self-protecting or retaliatory action should the Europeans continue to mistake prosperity for power and to harm United States interests. These threats are divisive and regressive because they are used in Europe both by America's friends and by America's critics. The former mention them as reasons why Europeans should be cautious if not docile, and willing to sacrifice some of their ambitions to the overarching need for United States military protection. The latter see in such American arguments merely a form of blackmail that ought to incite all true Europeans to a concerted effort for emancipation.

* Another example would be America's recent request for allied support in Cuba and Vietnam (although during the phase of decolonization it was the U.S. which insisted that NATO covered only the geographical area defined in the North Atlantic Treaty, and that the U.S. could thus not be forced to support France or Holland or Britain outside this zone).

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The final United States reaction, which somehow embraces all the previous ones, consists of stating that as long as Europeans remain divided it is indeed impossible for the United States to share control and to limit its freedom of action. Why bother edifying a common policy for Latin America or Southeast Asia, since Europe either suffers from too many voices or falls back into silence? All that is required, then, is full European backing of America's own position. What could be a goad to unity and identity actually turns into a roadblock, for often in the same breath it is suggested that even were a single voice to emerge, there would be no promise in it for the Europeans. It is asserted either that even though united, Europe would not have sufficient power to go beyond words toward a world role—an argument hardly calculated to discourage those Europeans who put reliance on the United States above unity—or that the only united Europe with which genuine "sharing" could take place would be both fully integrated *and* docile—again an argument hardly calculated to push Europeans into self-reliant unity, since full integration is not soon a likely prospect, and docility not a very exalting one.* And so among the European recipients of such warnings and promises, the fight continues between those who are hungry for the carrot and those who are angry at the stick.

The fight goes on for another reason as well. Given the political and psychological realities of dependence, the efforts of some Europeans to develop a sense of autonomy and unity, far from succeeding, have had effects exactly as delaying as those of the United States policies that these efforts challenged. And here is the third inhibiting factor: European reactions to de Gaulle. The two facts which stand out today are that the only project for joint European action all over the world and not merely in Western Europe is de Gaulle's, and that his European partners do not accept either his design or his methods. Indeed, nothing appears less likely to galvanize Europe than Zeus's thunderbolts hurled down from Mt. Olympus, the pronouncements that come down from the clouds around the summit, his disdain for mere mortals, and his

* The best example is that of Undersecretary George Ball's speech of May 7, 1964. Nuclear control requires "a very high degree of political unity" among the Europeans, and sharing presupposes their "willingness to accept world responsibilities"; but the latter tends to be equated with support for the U.S. position. Mr. Ball says that the U.S. has few national interests outside its territory; the implication seems to be that whereas "world responsibility" entails no sacrifice of national interests for the U.S., it would have to for the Europeans.

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challenge of that other, bigger Zeus, whose lightning could be thermonuclear, and to whom the mortals still turn for their protection. Whether de Gaulle's ultimate contribution to the cause of European identity will have been positive or negative, we do not know as yet. At present, the case must be argued approximately as follows.

De Gaulle's problem is the creation of a European common will which would rid the Europeans of the sense of international futility fostered by dependence. This has to be done in a world in which the contest of national wills remains the warp and the woof of the fabric. Consequently, in order to provide Europe with the *right* sort of unity—that of relative independence and renaissance—his first duty is to block what he considers the *wrong* kind—the sort of European integration that would produce an entity militarily not only dependent (for this he too recognizes as still inevitable) but subservient, economically docile and politically tied to the United States. Hence, for instance, his veto of Britain and his rejection of the MLF. His second task consists of trying to reach his goal by taking actions that hasten the emergence of the *right* sort of will. This has two implications. First, given both his objective of a Europe that would not be merely an American appendage and his conviction that various trends in world affairs encourage a divergence of interests between the two sides of the Atlantic, he must accentuate those trends (which he does not create), artificially pinpoint existing tensions, rub salt into wounds and turn differences into crises so as to beat into the reluctant and complacent Europeans a sense of distance from the United States. To be sure, the "objective reality" of divergence is partly shaped by him, but his strength lies in his grasping straws that would exist anyhow, and turning them into clubs. Second, while the others hesitate to follow him and wonder whether his conception of Europe is right, he must not only broaden the gap between the two sides of the Atlantic but also take *on his own* irreversible actions that push the others into a difficult choice between stopping the drive for European unity altogether (thus bearing the blame for it) and accepting his terms for unity, his definition of European identity.* His third task consists of writing the new book with the old grammar: to reach the new goal that he deems necessary—a Europe with a sense of mission—he finds only one way possible, the old way of statecraft and leader-

* See, for instance, his threat to the Germans about agriculture in July, 1963.

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ship. In the battle of wills whose stake is Europe's future face, it must be *somebody's* design that will shape the outcome; it is the true statesman's duty to use the wiles and witchery of his art in order to put *his* vision across, and even a vision of the common good can hardly be expected to omit or deny the peculiar good of the statesman's own *patrie.* Here there is one crucial implication: he must promote French policies designed to increase the position of France. If he succeeds, his united Europe will be one in which France will feel at home; if he fails, if the others refuse to join him and no sense of European mission emerges, he will at least have provided his country with solid assets in the continuing contest. In other words, heads he wins—both as a European and as a Frenchman—tails he still wins, as a Frenchman trying to exploit new opportunities for freedom of action. In either case France would be out of the plush circle, or gilded cage, of Atlantic orthodoxy; it is up to the Europeans to follow France's lead. Thus his intended nuclear force is either a lever with which to pry other Europeans loose from reliance on the American deterrent alone, toward the establishment of a European deterrent in which France's role will be prominent, or a token of France's independence amid European nations that refuse to be shaken out of slumber.

The Gaullist defense presents Europe as a sleeping princess, guarded by the American tutor, whom the Prince Charming tries to awaken. Since she insists on sleeping, his kiss comes pretty close to rape. And it is with rape that his adversaries charge him. The first count in their indictment is that he uses Europe to impose French domination and promote purely French policies. The Gaullist argument—that France is the only nation of Western Europe that can exert leadership anyhow, and that his only choice is between aggressive leadership and a frustrating, futile restraint that would certainly please the others but at the cost of immobility—falls flat with those who point to his disregard of the views of the others and to his constant emphasis on the virtues of the French nation. He says "We, Europe" when he acts as "I, France" in order that tomorrow's "We" should speak with the voice of France; but since today's Europe is far from accepting this voice as the gospel, and since he himself—in case Europe refuses to be aroused—must have his nation for consolation and fallback, both the abusive "We" and the frequent "I" are denounced as evidence of pure and contagious nationalism. A second charge is that in so doing and in rejecting supranationality he prevents the emergence of the only Europe or-

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ganically capable of speaking with one voice—a federal one. The Gaullist argument that a premature federation without a policy is far worse than a policy hammered out in con-federation falls flat with those who show that the immediate result is neither confederation, nor federation, nor policy. A final charge is that in his insistence on a separate European policy before anything else, and on an identity shaped through separation from the United States he weakens the unity of the West, which Europe's own unification ought to consolidate, not destroy. The Gaullist argument that the real objective is not to establish a third force but to build a second force in the West, and that ironclad Atlantic solidarity no longer corresponds to the new international reality: a complicated and multiple confrontation instead of the mobilization of two armed camps, falls flat with those who nevertheless would still prefer that Europe's hand be held by the mighty tutor rather than by the haughty Prince Charming.

Thus in the whole realm of world mission and high politics, where common interests are so much harder to discover and upgrade than in the field of prosperity, Europe falls into a dilemma. The mere curbing of the member nations' egos would produce not a common will and ego but a kind of vacuum which could perpetuate silence and dependence; yet the assertion of national egos provokes a tug of war in which Europe, requested to choose between a French face and an American face, may just as well remain faceless. It is a deadlock that prolongs Europe's silence.

Prospects and Projects

Thus the task of filling the void remains. We must examine what choices are open. Here we have to analyze trends, not in order to replace purpose with projection, but as a way of showing both what appears excluded by the trends and how broad a freedom of choice still remains. In every area we shall see that whereas an "Atlantic" Europe, dependent on the United States, is unlikely, the choice between unity and identity on the one hand and on the other a prosperous resignation to national divergence, a complacent abdication from responsibility remains.

An "Atlantic" Europe is unlikely because of different perceptions of interests* and genuine divergences of policies between the two

* It is easy for the scholar and the propagandist to show that despite the differences in perception, there exists an "objective" or "real" common interest.

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sides of the Atlantic. Common interests abound, and nobody denies them; there is a western interest in monetary stability and in an organization of world trade helpful to the underdeveloped countries; there is a joint interest in deterring Soviet or Chinese provocation and in avoiding nuclear war; there is an interest in a pluralist system of world order that provides the new nations with procedures of peaceful change and that could accommodate even the Communist nations once they are cured of their itch for expansion. And yet once again we find that these common interests are not always operational, for they do not determine identical or similar intermediate goals and directions, and it is these that matter.

Thus, in the case of European economic integration, the very pressures from the United States have pushed the Six into common policies which entail differentiation from and clashes with America. Indeed, each time the EEC has to define its position toward the outside world—the United States, the underdeveloped countries, the Soviet camp—the choice between the kind of agreement that makes of the community a more distinctive force and the fiasco that would result from some members' refusal to accept any other common outcome becomes more loaded in the former direction.

It is in the military area that the transcontinental divergence of interests has been most visible. To be sure, military alliances are always susceptible to tensions: the major power's fear of being dragged into war against its will by its allies, the lesser power's fear of being sacrificed either if the senior ally is trigger-happy or if the senior ally's finger lingers too leisurely on the safety-catch; these strains have been heightened but not created by nuclear weapons. Strains of a radically new kind have appeared only once the United States and the Soviet Union had reached a stage not of nuclear equality but of what might be called peril parity—the capacity of each side to inflict unbearable losses on the other. At this point the Western alliance could not fail to be rocked by the combination of nuclear disparity (that is, America's quasi-monopoly of nuclear weapons and strategy-making in the alliance) and geographical differences. The United States could not help noting that, in case nuclear deterrence did not work, the massive resort to nuclear weapons for the defense of Europe would be suicidal;

Indeed, this is often the case. But in the realm of policy—that is, of action and choice—it is the leaders' and elites' perceptions, however faulty, that matter: perceived differences count more than objective convergences.

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hence the preference both for a different war strategy and for a different form of deterrence. But the perfectly sound principle that different threats in different places require different strategies means in practice that a direct Soviet attack against the United States (necessarily nuclear) would entail a nuclear response, whereas an attack on Europe (possibly conventional) would provoke a flexible response. The geographical difference happens to correspond not to a distinction among separate portions of one state but to a distinction between separate nations.

Hence a triple conflict. First of all there is a conflict over the strategy of deterrence and war itself. The Europeans do not doubt the wisdom of the idea of flexible response; they question its application to Europe. They would prefer the United States, if not to *treat* any attack on Europe exactly as an attack on the United States, at least to try to *deter* any attack on Europe by making it clear that it would treat it as if it were one on the United States itself. The United States doubts that such a deterrence strategy would be credible, that is, that it would deter. The Europeans doubt that the present United States strategy would deter precisely because it may be only too credible. What is at stake is not the existence of America's commitment to Europe but its nature or its scope. The Europeans would like it to be total; the United States prefers to leave something to chance.

Secondly, there is the problem of control. Even if the Europeans were convinced of the virtues of a flexible response, they would want to be in control of the means of making it. What is at stake is not whether Europe should or should not raise conventional forces for such a response, but whether Europe should or should not have a share in the control of nuclear weapons, that is, the weapons capable of deterring the enemy from provocation and from pushing harder if he has already initiated a limited war. What many Europeans desire is either a finger on the United States trigger or a trigger of their own. The United States thinks in cataclysmic terms: the perspective of the extreme ought to govern all policy, the unlikeliness of Doomsday being judged less relevant than its costs. Hence the United States argues that small nuclear forces not under its control are dangerous, and that should the apocalypse occur, American nuclear weapons would suffice anyhow. Europeans think in different terms and gamble, so to speak, on the unlikeliness of folly. Not only do they believe that a modicum of control of their own would make Armageddon even less likely by complicating the

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would-be aggressor's calculations; chiefly, they think of all those crises short of but more probable than Armageddon in which he might be tempted to push, pry and provoke unless he feared thereby to drive a European state into using (or threatening to use) its own nuclear weapons and triggering the use (or the threat of the use) of America's own. Thus each side stresses what is in its own interest as well as in its own character: the United States, the situation of all-out war; and Europeans, the familiar situation of less than all-out crises. Last, there is a conflict of interests in the realm of arms control. Europeans are afraid of a bilateral American-Soviet agreement that would either freeze the present relationship of nuclear disparity within the alliance, or even worsen it by, say, some degree of United States nuclear disengagement or some measure to prevent Europeans from developing their own forces.[19]

In the area of diplomatic strategy as well, common interests are somehow pushed back by divergent calculations and concerns. Obviously, all Europeans have an interest in preventing the kind of détente that, while removing some woes and some walls, nevertheless preserves United States predominance in Western Europe and Soviet domination in Eastern Europe. Europe's interest in and concern for the emancipation of Warsaw, Prague or Budapest from Soviet rule are greater than America's. The United States might well be satisfied either with a "Soviet bloc" shorn of its proselytism or with a mere lessening of Soviet control; but a loosening so great that the former satellites could once again behave as Europeans first, that is, a political renaissance of the European continent as a whole, is neither an obvious nor a necessary United States objective. Nor do United States and European objectives in the UN and in the "Third World" coincide. All Europeans have an interest in preserving Europe's influence in the newly independent areas, and in offering them aid and understanding whenever, for any reason, those nations refuse to or cannot turn to the United States. Such a division of labor between the Europeans and the Americans constitutes no more treason of the latter by the former than United States anti-colonialism was a betrayal of Europe by America; for the only alternative to such dissociation within the West was then and would remain tomorrow an appeal by the new nations to the "revolutionary models"—Moscow or Peking. Yet precisely because such dissociation is both objectively useful and subjectively resented by those who feel repudiated or abandoned, it points to the unlikeliness of identical policies on the two sides of the Atlantic.

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Thus an "Atlantic Europe" would suppose that the Europeans have been capable of overcoming their divisions only by sacrificing Europe's identity to America's mission. In a world that was essentially bipolar—a world in which Europe was still under the surface of the ocean of international affairs, and in which the Soviet-American conflict was the overriding issue which justified Europe's total solidarity with the United States—a case could have been made for such an arrangement. The "polycentric" world of today, in which Europe's nations are again playing with the waves and competing with other swimmers, rules it out despite American desires. But in such a world the very trends that destroy one prospect stop short of dictating another. When the projections are ambiguous, priority to purpose is clear; when the trends point in different directions, it is up to the statesmen to shape them to their goals. Such ambiguity appears in each of the areas we have examined. The choice between unity and dispersion is open.

Thus, economic integration obviously proceeds and the procedures set up by the communities press the governments hard to extend harmonization in all directions. With a common market and a joint external tariff the states cannot afford widely different wage, budgetary and monetary policies. Nations whose prosperity becomes tied to the success of the joint undertaking lose some of their individual freedom of action in the world, for such freedom is limited by the need to keep the concern going. The more eggs are broken into it, the more difficult it is to unscramble the omelet. And yet economic unification still tells us little or nothing about political and military unity. Once everybody is convinced that it is in nobody's interest to break up the concern, each one can go quite far in the pursuit of his own diplomatic or strategic interests without incurring any serious risk of retaliation, as France's veto of Britain showed.* The restraint created by the communities limits each member's capacity to pursue action directly and deliberately aimed at harming his partners; it does not limit his freedom to act in other respects as he sees fit. Even nations that agree on sound budgets can still distribute their expenditures in very different ways; even nations that agree to spend the same percentage of their GNP on defense or foreign aid can still affect their resources to uncoordinated or conflicting strategies.

* Those who suggest that the "other five" pursue a policy of isolating France and join the U.S. and Britain in this enterprise thus underestimate France's hold over its partners in the communities.

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The common European interests that separate Europe from the United States in the area of defense serve as the basis of various proposals for a European military organization or a European deterrent. The very smallness of Western Europe's geographical area argues in favor of such schemes. In case of a Soviet provocation against a European nation, the latter cannot be sure about the scope of America's commitment, but it has fewer reasons to doubt that one of its partners and immediate neighbors endowed with nuclear weapons would hesitate to use or to threaten to use them. General Gallois' thesis about the destructive effect of nuclear weapons on alliances is far too blunt and lumps together situations that are politically and geographically distinct. And yet here again the trend is ambiguous. Even if all the nations of Western Europe did agree on the persistence of a Soviet military threat, they would still be able to proceed from common interest to separate policies; the same goal—security—can be pursued through totally different routes. It is here that attempts at unification have been least successful (*vide* EDC) and that separate military programs are most difficult to reverse and to coordinate. The Germans try to still their fears by acting closely with the United States in order to inflect American strategy and gain access to United States decision-making. The French prefer slaps to seduction and challenge to docility; they try to develop their own nuclear force so as to impair the application of America's doctrine and to have something of their own to control. Germany has signed the test ban and hopes to avoid the bad effects of arms control through prior consultation. France continues its tests and boycotts disarmament negotiations altogether. Furthermore, the key to a genuine system of European defense lies probably in England, without whose nuclear force a European deterrent would remain pretty skimpy.

Furthermore, it makes little sense to negotiate a common defense so long as the combined forces would be unable to serve, not merely a common doctrine, but a common foreign policy. Thus the solution to the military problem presupposes an agreement on Europe's role in world affairs. Only then will it be possible to arrange either a coordination of national forces effective enough to give all participants a share in the control if not in the possession of the European deterrent, or a genuine merger of national forces under a single authority endowed with the formidable power to threaten the use of and to use nuclear weapons: a power which presupposes a sense of identity and a certainty about aims and strategy that exist no

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more today among the Europeans than they exist between them and the United States.

Finally, the task of those who would like to use United States-European military divergences as a reason for reducing intra-European ones is complicated by the détente. True, peril parity, which led the United States to revise its strategy in Europe, has shocked the Europeans. But this same parity combines with internal Communist dissensions to lessen the risk and the fear of war. Thus, European champions of unity are squeezed between two facts: when the peril is highest, as long as Europe is militarily weak a separate European establishment (by contrast with a specialization of Europe's military contribution as often suggested by the United States) makes no sense. When the peril declines, the sense of urgency recedes and the prevalence of national calculations resumes.

The same reasoning applies in the decisive realm of foreign policy. The divergences between Europe's and America's interests mentioned above obviously suggest the need for European political unity. Only a European organization could be strong enough to affect American policies, or serve as a magnet toward the Soviet satellites so as to awaken a European patriotism among them. For if they should be faced with either an Atlantic bloc or a divided Western Europe in which Germany would be on its own again, they would have little choice but to remain under Moscow's wing, even in case of a loosening of Russia's hold. Only such an organization could fully convince England that its role lies in Europe rather than in trying to cling either to dusty vestiges of power or to the hope of getting the best of both the world inside Europe and the world outside.

And yet the success of the quest for the common new mission is far from certain. The prospect of a détente and the rise of the Third World have evoked at least three conflicting sets of goals and directions in Europe. Some still believe that the best Europe can hope to do is influence American policies from within the alliance; this is the "Atlantic Europe." Others argue for a "European Europe" that would try to keep the détente from harming European interests: Europeans should act as if the Soviet threat had remained constant, but also to emancipate Europe from America's predominance in facing the threat. Others see in the loosening of alliance ties, in the lessening of tensions in Europe, in the decreasing importance of the United States-Soviet Union conflict throughout the Third World, a fishing license for the separate European nations released from the

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compound of bipolarity. Germany here is a crucial case. As long as the world scene was dominated by the Cold War, West Germany—partitioned and placed next to the Soviet forces—was the European state on which bipolarity weighed most, that is, it was the most dependent on the United States and the one on which United States power could most easily be brought to bear. If the deadlock of the superpowers brings about a détente and "polycentrism," Germany may switch from the direction of an "Atlantic Europe" to that of independent national action. If the United States seeks accommodation with the Soviet Union, why should not Germany pursue its own national aims (which differ from almost everybody else's) by trying for a separate deal with Russia, which holds the key to reunification? The same reasoning can be held by others: Why should not France —tired of beating the reluctant European horse into harness—seek prestige and grandeur in the Third World, and turn what is de Gaulle's fallback objective into the primary one? Why should not Italy opt for nonalignment?

Thus the trends can be interpreted as either suggesting a joint European enterprise or as removing the need for it altogether. There is choice—and a question of will. A joint European undertaking, at this point, is not likely to be supranational or federal, for all the reasons mentioned before. There is not yet any agreement on goals and directions; such an agreement would take time to emerge. But the enterprise out of which such agreement should come presupposes at least a common *intention* to find the goals and the directions. In other words, the prerequisite to common policies (and to institutions capable of carrying them out and of sharpening them) is a determination to define a new role in the world for Europe; behind such a determination there is a *postulate:* that Europe is not only a geographical expression but an entity capable of overcoming its divisions and of bringing its own contribution to world affairs. Out of the postulate of a possible European identity would gradually arise the *policies* realizing this identity. Should the European statesmen of the near future behave in such a way, two consequences would follow. First, the European entity would obviously be playing the game of world politics. Here and there some writers suggest that it should not behave as a superpower; this can mean only that it either ought to behave like someone else's dependent, or that it ought to give the world the example of abnegation or of observance of the Golden Rule (or the Rule of Law). Europe, alas, can hardly define its identity either in subservience or in what amounts to self-

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sacrifice. The alternatives to a sort of collective European nationalism are a set of separate ones or a kind of despondency, not a world government or a world ruled by love and charity. Second, the European entity, if it becomes a going concern, is likely to pursue policies closer to de Gaulle's than to those of the United States. The precedent of the realm of welfare indicates this, as well as the divergence of interests discussed before. Moreover, any definition of common policies entails of necessity a deliberate distinction between the new entity and the powerful senior ally.

Should the common determination fail to appear, there would be no dearth of "miserable consolers." The prosperity of Europe's separate parts and the opportunities for influence and maneuver would provide good alibis. However, the business and busyness of individual European nations is no substitute for a joint European project. Acting separately, the European states could certainly complicate the task of the superpowers—and nuisance value matters, as de Gaulle has often demonstrated. But they could neither contribute to the solution of the world's main problems nor share responsibilities with the superpowers, for although there are new rules in the game of world politics, some of the harsh old ones are still in force or in reserve. Even in a world of nuclear deadlock the threat of force remains an essential instrument of diplomacy, and power defined as mobilizable potential remains the *ultima ratio*. Separate European nations could not hope to acquire enough of such strength. Should the détente prosper, they could make it more difficult, but they would not be major actors in the decisions that would give it depth. Should the détente vanish, they would again be merely a collection of minor partners of the United States, with concerns too parochial and forces too slender to be taken seriously. In either case their division would leave to others—China for instance—the transformation (and the benefits of the transformation) of a bipolar world into one where more than two superpowers detain the *ultima ratio* and where, perhaps, the influence of the nonpowerful might again drastically decline. In international relations, the possession of power is to be sought not only for the sake of prestige or domination but also because only the mighty create; the influential can maneuver and advise, convince or set examples; they can dig in and defend their place in the sun, but the mighty alone set the course of the sun. De Gaulle has understood this well. This is why, should no European common will emerge, he may remain in history, not as the gravedigger of a unity that was never there to bury (had it

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been there, he would not have tried or succeeded), but as the last European statesman with a world-wide vision. The "new Europe" would then fall back into the habits of its past, but in the context, both happier and more bitter, of an economic intertwining that would limit its self-destructive atavism, and of a world in which the relative importance of the European nations would—for all their possible freedom of action—be far less considerable than in the past.

A case could be made for a European choice of unity and purpose in world affairs even if Europe's industrial society became the twin of America's—precisely because the social order does not determine foreign policy and because the divergence of interests would persist. Indeed, one could argue that the more European society comes to resemble America's, the more Europeans ought to save their originality by taking hold of their fate in the world. A case could also be made for the proposition that even if it were in Europe's interest or fate to become "Atlantic Europe," it still ought to seek its identity by using its freedom of creation in the internal realm of social and political affairs. But the two problems of choice are connected. For Europe to regain not just a concern for but a voice and a policy in Southeast Asia, Latin America or Eastern Europe, it is not only the habit of external dependence but also the complacency of prosperity that must be overcome. For Europe to design a project of social, educational, political accomplishments, it must realize not only that there is room for creativity within its borders but also that the effort is justified by the role Europe can play again and the example it can still set beyond them.

In both the external and the internal realms, the forces that affect Europe's present and future are so complex that they afford opportunities for statesmanship: they are limits and chances, not constraints and commands. In both realms the existence of such opportunities raises both a question of imagination and a question of self-respect: to believe falsely that one is the master of one's fate when one is not is dangerous, but to act as though one were not when one is—at least in part—is a singularly debasing form of behavior. In both realms there is today a shrinking from originality, a diffidence toward normative ambitions; the happy submission to industrialization, the mistaking of a procedure of integration for a purpose of action are two sides of the same coin.

In both realms, America somehow provides Europe with an alibi.

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In one realm, the identification of Europe with the United States (whether for the purpose of hailing it or of deploring it) is a mistake, for it is industrial society, not America, that is the force at work; what is distinctively American in the industrial society of the United States need not be transplanted in Europe unless the Europeans deliberately choose to do so, in which case they would be exercising their freedom of choice. In the other realm, Europe's relative decline has been the outcome of Europe's own behavior. Dependence on the United States need not be permanent and total unless the Europeans continue to behave in such a way as to perpetuate a relationship which no law of history imposes.

America has been the social model and the political leader. It is time for the students to emancipate themselves—which means transcending both servility and defiance, the two forms of slavish behavior. For identity can be found in neither. It can be found in separateness. The differences between American and European societies, and between American and European interests, ought indeed to be saluted by Americans and Europeans alike. Their very existence allows the latter to test once again their inventiveness. As for the former, they should realize two facts. First, those differences make it possible for the Europeans to behave as self-respecting actors and thus to make a contribution of their own—something that a nation unaccustomed to imperial domination and unwilling to bear all burdens alone should appreciate, for domination breeds both among those it convinces and among those who resist it a sense of irresponsibility that justifies domination anew, but at an increasing psychological and political cost. Second, those differences are in no way so fundamental as to justify anxieties. In the case of people so closely linked, separateness means neither total divorce nor necessary hostility; it means merely autonomy, the sense of being the author of one's own fate as far as impersonal and uncontrollable forces allow. It is America's mistake often to interpret the request for autonomy as a suit for divorce or a sign of hostility, and it is de Gaulle's shock tactics that justify confusion—although the apparent creation of antagonism, or the apparent plea for divorce, may be the only way of ever reaching autonomy.

In order to reach it, Europe must overcome much of its past: in its distant past, all the legacy of national divergences, but not that of diversity; in its recent past, the passive absorption of American lessons, but neither the drive for prosperity nor the concern for unity. The fruits of industrialization and of a common market ought

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to keep growing, but so that they can be used for purposes chosen by the Europeans rather than for mere enjoyment. Physical and biological vitality is not missing. It is spiritual vitality that is in question. Under Roman rule the Greek cities, satisfied with the peace and order brought from the outside, saw no reason to coalesce, and congratulated themselves on the degree of rationality they had achieved in the mastery of social problems, for internal complacency and dependence breed and feed each other. In that fertile desert of Europe, which now spurns adventures and savors the delights of production and consumption, and which wavers between a cursed past, a protection increasingly less adequate, and a future so far more happening than chosen, how long will one have to wait until economic vigor is matched by political and intellectual inventiveness —long the chief glory and the only pride of the Old Continent?

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1. See the special issue "A New Europe?" Winter, 1964.
2. See Manlio Rossi-Doria, *Dædalus, op. cit.*, p. 341. It is interesting that the two articles by Mr. Rossi-Doria and Mr. Pizzorno are the most pessimistic of the pieces written by Europeans about Europe's social changes, and Mr. Cavazza's the most impatient.
3. The two previous paragraphs are intended to qualify the conclusions developed by Seymour Lipset, *Dædalus, op. cit.*, pp. 271-303.
4. In the French context, I have discussed this problem in my contribution to *In Search of France* (Cambridge, 1963). See also "La démocratie à refaire," *France Forum* (Paris, 1963) and "Démocratie aujourd'hui," *Action Populaire* (Paris, 1963).
5. See the analysis by Michel Crozier in his very important book *Le phénomène bureaucratique* (Paris, 1964), pp. 315 ff.
6. See the analysis by Ralf Dahrendorf in "Demokratie und Sozialstruktur in Deutschland," *Archives européennes de sociologie,* Vol. I, No. 1 (1960), pp. 86-120.
7. All these quotes are from Alain Clément, *op. cit.*
8. Hans Magnus Enzensberger in *Encounter,* April, 1964, p. 16.
9. See the interesting discussion by Jean Meynaud, "A propos des spéculations sur l'avenir," *Revue Française de Science Politique,* Vol. XIII, No. 3 (Sept., 1963), pp. 666-688.

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10. For an example, see Louis Armand et Michel Drancourt, *Plaidoyer pour l'avenir* (Paris, 1961).

11. Last page of *The Opium of the Intellectuals.*

12. See his *Anti-intellectualism in American Life* (New York, 1963), Part V.

13. See J. M. Domenach, "Le modèle americain," *Esprit,* July-August, September and October, 1960; Crozier's article in *Dædalus, op. cit.,* pp. 514-542.

14. *Dædalus, op. cit.,* p. 66.

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16. Ernst B. Haas, "Technocracy, Pluralism and the New Europe," in Stephen R. Graubard (ed.), *A New Europe?* (Boston, 1964), pp. 62-88.

17. See *Man and his Government* (New York, 1963), Chapter 32.

18. The argument is designed to qualify that of Kenneth N. Waltz in "The Stability of a Bi-polar World," *Dædalus,* Summer 1964, pp. 881-909.

19. These points are well covered both in Raymond Aron's *Le Grand Débat* (Paris, 1963) and in various unpublished papers prepared by Hedley Bull for the Council on Foreign Relations.

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FREDERIC HEIMBERGER, born in 1899 in Columbus, Ohio, has just become, as of 1964, Dean of Faculties Emeritus, and Professor of Political Science Emeritus of Ohio State University. He has described himself as a classroom teacher gone wrong, drawn into college and university administration at the time of the "Veterans Bulge" after World War II. His services to his university included a term as President of the Ohio State University Research Foundation, 1957–1962. He has also been a member of the Board of Visitors, Air University, USAF, 1955–1957, and of the Committee on Institutional Coöperation of the Big Ten and University of Chicago, 1960–1964.

STANLEY HOFFMANN, born in Vienna in 1928, is professor of government in Harvard University. Educated in France, he is the author of *Organisations Internationales et Pouvoirs Politiques des Etats* (1954), *Le Mouvement Poujade* (1956), co-author of *In Search of France* (1963), and editor of *Contemporary Theory in International Relations* (1960).

CLARK KERR, born in 1911 in Stony Creek, Pennsylvania, migrated to the West Coast in 1937, where, with the exception of service with

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the War Labor Board during the War, his career has been based ever since. Economist, arbitrator of labor disputes, educator, he joined the faculty of the University of California at Berkeley in 1945. Serving first as professor and then Chancellor, he has since 1958 been President of that University.

ROBERT S. MORISON, born in Milwaukee in 1906, is director of medical and natural sciences at the Rockefeller Foundation, to which he has been attached since 1944. His special interests are neurophysiology (specifically, the electrical activity of the central nervous system), on which he has written extensively, and the advancement of scientific education and research, particularly in underdeveloped countries. His article, "The University and Technical Assistance," in the Spring 1962 issue is his most recent contribution to *Dædalus*.

PETER H. ROSSI, born in New York City in 1921, is director of the National Opinion Research Center and a professor of sociology at the University of Chicago. His books include *Why Families Move* (1956) and *The Politics of Urban Renewal* (1962). With Alice S. Rossi, he was the author of "Some Effects of Parochial-School Education in America," which appeared in the Spring 1961 issue of *Dædalus*.

JULIUS STRATTON, born in 1901, is President of the Massachusetts Institute of Technology, with which institution he has been associated for forty years. His publications reflect both his scientific studies—*Electro Magnetic Theory* (1941) and many technical papers—and his extensive experience in academic organization and administration. He holds the Medal of Honor of the American Institute of Radio Engineers and the Faraday Medal of the Institute of Electrical Engineers, London.

W. ALLEN WALLIS, born in Philadelphia in 1912, is both President of the University of Rochester and a professor of economics and statistics in that institution. With Harry V. Roberts he is the author of *Statistics: A New Approach* (1956), and *The Nature of Statistics* (1962). He is chairman of the editorial advisory board of the *International Encyclopedia of the Social Sciences,* and President-elect of the American Statistical Association.

PAUL A. WEISS, born in Vienna in 1898, on October 1st of this year assumed the duties of Dean of the Graduate School of Biomedical Sciences in the University of Texas. For the preceding ten years he was associated with the Rockefeller Institute, as member, professor, and head of its Department of Developmental Biology, following twenty years at the University of Chicago. His scientific work is published in three books and over two hundred original papers. He is a member of the National Academy of Sciences, the Royal Swedish Academy of Sciences, the Serbian Academy of Sciences, the American Philosophical Society, and the American Academy of Arts and Sciences.

JEROME M. ZIEGLER, born in 1923 in New York City, is Associate Direc-

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tor of the Chicago School Survey, and President of Jerome Ziegler Associates, an educational consulting firm. While serving as president of the American Foundation for Continuing Education (1956–1962), he was concerned with establishing adult discussion seminars in economics, international affairs, the arts and sciences, and politics. His interest in the latter is presently taking the form of standing as Democratic candidate for U. S. Representative in the 14th Congressional District of Illinois.

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Contributors: Lotte Bailyn, Jill Conway, Carl N. Degler, Erik H. Erikson, Joan M. Erikson, Esther Peterson, David Riesman, Alice S. Rossi, Edna G. Rostow.

A New Europe? (*double issue, Winter 1964*)

Contributors: Alchille Albonetti, Raymond Aron, Frank Bowles, Karl Dietrich Bracher, Fabio Luca Cavazza, William Clark, Michel Crozier, Ralf Dahrendorf, Charles Frankel, Oliver Franks, Stephen R. Graubard, Alfred Grosser, Stephane Hessel, Alexander King, Max Kohnstamm, Eric Larrabee, Seymour Martin Lipset, Richard Mayne, Alessandro Pizzorno, Ernesto N. Rogers, Manlio Rossi-Doria, Alain Touraine, Eric Weil.

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Contributors: S. A. Barnett, Amitai Etzioni, Joseph Goldstein, H. Scott Gordon, Jay Katz, George A. Kelly, William Letwin, Robert Jay Lifton, Bruce Mazlish, Agnes Mongan, Krister Stendahl, Overton Hume Taylor.

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The American Reading Public (*Winter 1963*)

Contributors: Marshall A. Best, Leo Bogart, Reuben A. Brower, Benjamin DeMott, Jason Epstein, John Hollander, Dan Lacy, Henri Peyre, Leonard Shatzkin, Edward Shils, Roger W. Shugg, Thomas J. Wilson, and others.

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Contributors: Niels Bohr, P. W. Bridgman, Abraham Kaplan, George F. Kennan, Clyde Kluckhohn, Henry A. Murray, Linus Pauling, W. W. Rostow, Edward Teller.

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